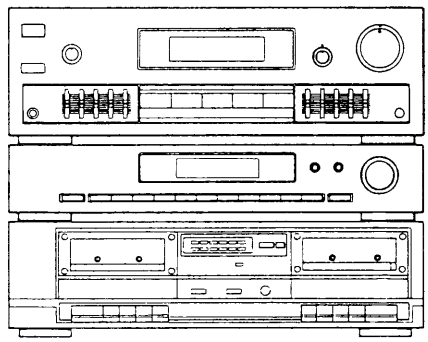
SEN-311/311CD

SERVICE MANUAL
REVISED

Canadian Model
E Model
Australian Model
SEN-311

US Model
SEN-311CD



- SEN-311/311CD is composed of following models. As for the service manual it is issued for each component model, than, please refer to it.

	SEN-311	SEN-311CD
Amplifier	TA-AX311	TA-AX311
Tuner	ST-JX311	ST-JX311
Cassette deck	TC-W311	TC-W311
Compact Disc Player		CDP-C211
Speaker		SS-U311

SPECIFICATIONS

General

Power requirements
- Canadian model: 120 V AC, 60 Hz
- Australian model: 240 V AC, 50 Hz
- Other models: 120 V, 220 V or 240 V AC, adjustable, 50/60 Hz

Power consumption
- Canadian model: 400 VA
- Australian model: 220 W
- Other models: 220 W

AC outlet (except for Australian model)
- Canadian model: 1 switched, 120 W/1 A max.
- Other models: 1 switched, 100 W max.

Accessories supplied
- Flat cord with 11-5-5-pin connectors (1)
- Flat cord with 9-9-pin connectors (1)
- AM loop antenna (1)
- FM wire antenna (1)
- 45-rpm adaptor (1) (except for Canadian model)
- Remote Commander RM-S102 (1)
- Sony batteries SUM 3 (NS) (2)

Design and specifications subject to change without notice.

PARTS LIST

Part No.	Description
1-465-426-21	REMOTE COMMANDER (RM-S102)
1-501-374-51	ANTENNA LOOP
1-506-652-11	(CND)····ADAPTOR, PLUG
3-701-806-03	(E, AUS)··ADAPTOR (E), 45
1-528-359-11	BATTERY SUM 3 (NS)
1-590-536-11	CORD (WITH CONNECTOR)
1-590-537-11	(E, AUS)·····CORD (WITH CONNECTOR)
1-590-537-21	(CND)·····CORD (WITH CONNECTOR)
3-701-630-01	BAG, POLYETYLEN
3-703-390-04	(US)·····IMPORTANT SAFEGUARDS
3-753-103-11	(CND, E, AUS)··MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, CHINESE)
3-753-103-21	(US)·····MANUAL, INSTRUCTION (ENGLISH)
4-943-655-01	SPACER C
*4-943-623-01	(AEP)·····INDIVIDUAL CARTON
*4-943-839-01	(US, CND)···INDIVIDUAL CARTON
*4-945-086-01	(E)·····INDIVIDUAL CARTON

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

STEREO COMPONENT SYSTEM
SONY®

English
91G0641-1
Printed in Japan

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Published by Customer Relations and Service Group

使用時は添付資料も参照のこと
Refer to the additional documents.

9-956-351-12

Sony Corporation
Audio Group

SEN-311/311CD

SONY
SERVICE MANUAL

Canadian Model
E Model
Australian Model
SEN-311

US Model
SEN-311CD

CORRECTION-1

Correct your service manual as shown below.

☛ : **indicates corrected portion.**

Page	INCORRECT		CORRECT	
	Part No.	Description	Part No.	Description
1	1-590-536-11	CORD (WITH CONNECTOR)	1-590-536-11	CORD (WITH CONNECTOR).....(TA-ST) ☛
	1-590-537-11 1-590-537-21	(E, AUS)...CORD (WITH CONNECTOR) (CND).....CORD (WITH CONNECTOR)	1-590-537-21 ☛	CORD (WITH CONNECTOR).....(TA-TC) ☛

9-956-351-91

Sony Corporation
Audio Group

English
92C0641-1
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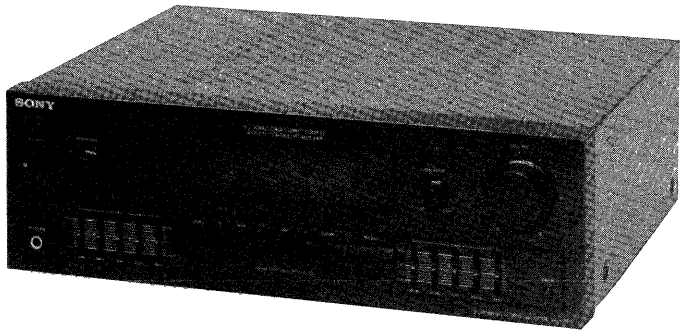
TA-AX311

SERVICE MANUAL

US Model
Canadian Model
E Model
Australian Model



SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:
With 8-ohm loads, both channels driven, from 40 - 20,000 Hz; rated 110 watts per channel minimum RMS power, with less than 0.9% total harmonic distortion from 250 milliwatts to rated output.

Inputs

	Sensitivity	Impedance
PHONO	3.0 mV	50 kohms
TUNER, CD, VIDEO, TAPE	250 mV	50 kohms

Output — REC OUT: Voltage 250 mV, impedance 1 kohm
SPEAKER: Accepts speakers of 8 to 16 ohms
HEADPHONES: Accepts headphones with low and high impedance

Frequency response
PHONO: RIAA curve
TUNER/CD/VIDEO/TAPE: 30 Hz – 30 kHz ±3 dB

GRAPHIC EQUALIZER controls
Boost/Cut range:
±8 dB (100 Hz, 330 Hz, 1 kHz, 3.3 kHz)
±6 dB (10 kHz)

Dimensions — Approx. 430 x 145 x 360 mm (w/h/d) (17 x 5⅝ x 14⅛ inches)

Weight — Approx. 9.5 kg (20 lb. 15 oz.)

Design and specifications subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

INTEGRATED STEREO AMPLIFIER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

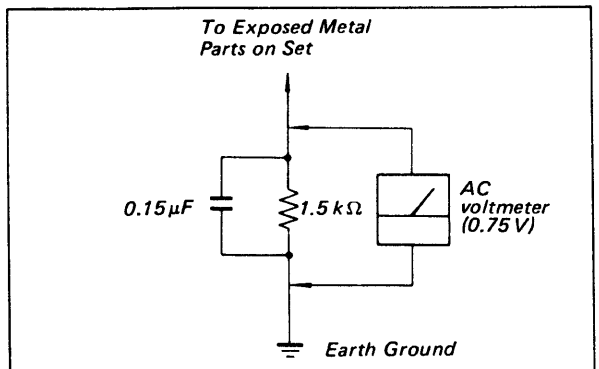


Fig. A. Using an AC voltmeter to check AC leakage.

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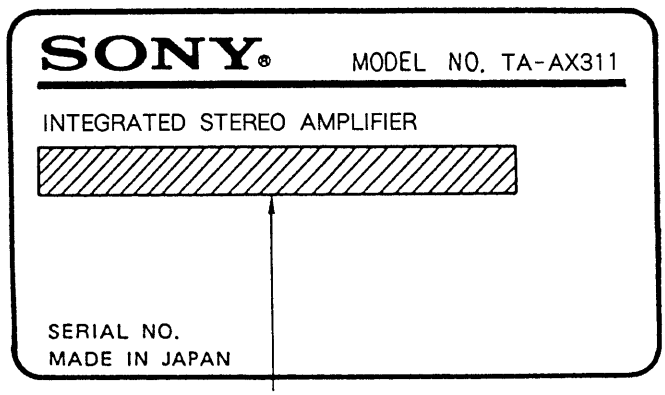
MODEL IDENTIFICATION

– Specification Label –

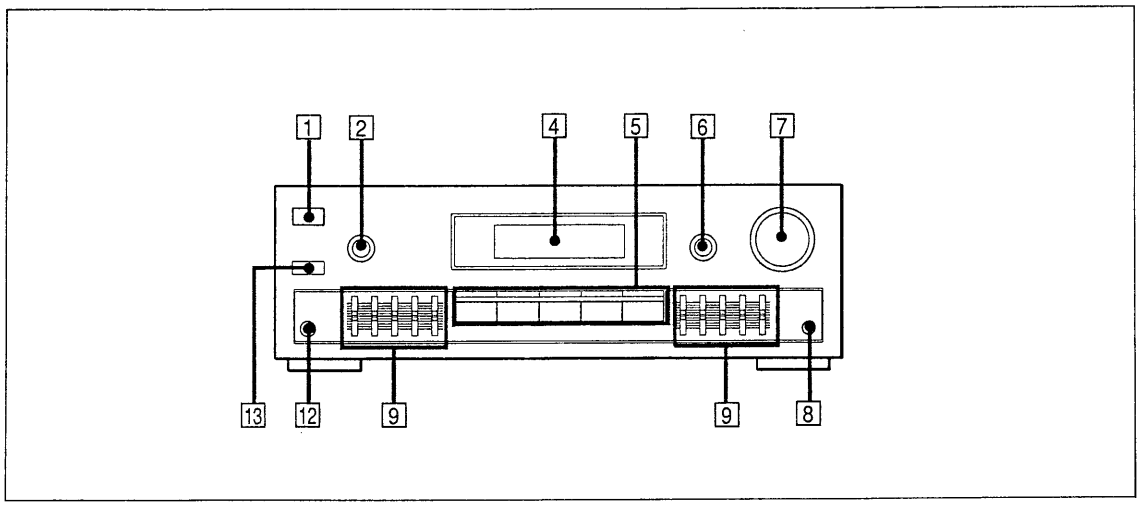


US, Canadian models : AC 120V, 60Hz
200W (U) 400VA (CA)
Australian model : AC 220V~50/60Hz 220W
E model : AC 120/220/240V~50/60Hz
220W

SECTION 1
GENERAL

This section is extracted from instruction manual.

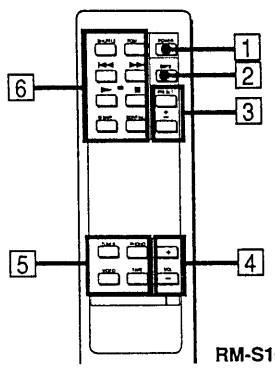
1-1. Location and Function of Controls



Amplifier

1 **SYSTEM POWER switch**
When the SYSTEM POWER switch is turned ON, the settings on the display panel are automatically reset the original setting.
2 **SPEAKERS selector**
4 **Display window**
5 **Function selectors**
6 **BALANCE control**
7 **MASTER VOLUME control**
8 **DBFB switch**
9 **Graphic equalizer controls**
12 **HEADPHONES jack**
13 **Remote control sensor**

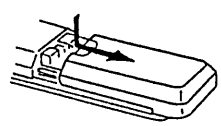
Remote Commander



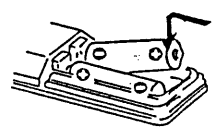
RM-S102

Installing Batteries

1



2 Two size-AA (R6) batteries



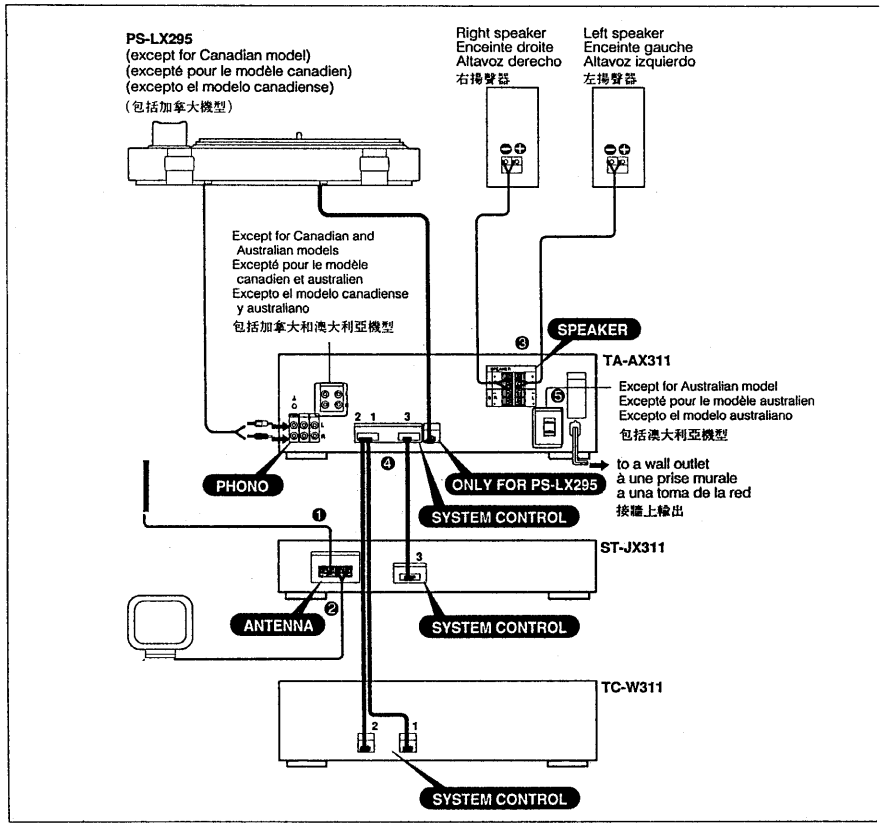
1 **POWER button**
2 **DBFB button**
3 **TUNER PRESET +/– buttons**
4 **VOL (volume) +/– buttons**
5 **Function selectors**
6 **CD player operation buttons**
CD ►: Selects the CD function and starts CD playback.

Battery life
About half a year of normal operation can be expected when using the Sony SUM-3 (NS) batteries. When the batteries are exhausted, the remote commander can no longer operate the unit. If this happens, replace both batteries with new ones.

To avoid battery leakage
When the commander is not be,used for a long time, remove the batteries to avoid damage caused by battery leakage and corrosion.

Connections

- Connect the AC power cord last. Make sure power is off.
- Cord plugs and jacks are color coded. Red plugs and jacks are for the right channel (R) and white ones are for the left channel (L).
- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- Keep speaker cords, connecting cords and power cords away from the AM loop antenna and the tuner's antenna lead-in to avoid possible noise pickup.



❸ Speaker cords

You can connect two pairs of speaker systems: system A and system B.
They can be selected individually or simultaneously with the selector on the front panel.

Cordons des enceintes acoustiques

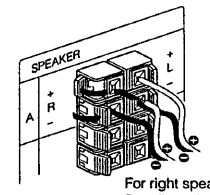
Il est possible de raccorder deux paires d'enceintes acoustiques: le système A et le système B.
Elles peuvent être sélectionnées individuellement ou simultanément à l'aide du sélecteur situé sur le panneau avant.

Cables de los altavoces

Usted podrá conecctar dos pares de sistemas de altavoces: sistema A y sistema B.
Estos sistemas podrán elegirse individual o simultáneamente con el selector del panel frontal.

揚聲器連接綫

可以連接兩對揚聲器系統:
A系統和B系統。
利用前控制盤上的選擇鍵，可進行單獨或同時使用的選擇。



❹ Flat cords (supplied)

Connect the blue and black connectors to the same color connector jacks respectively for controlling each unit.

Cordons plats (fournis)

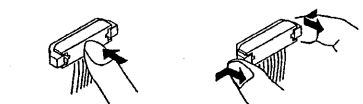
Brancher les connecteurs bleu et noir respectivement aux prises de la même couleur pour contrôler chaque appareil.

Cables planos (suministrados)

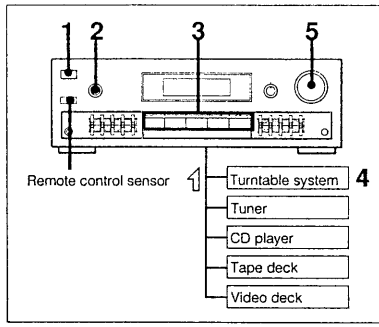
Inserte los conectores macho azul y negro en los hembra del mismo color a fin de controlar cada una de las unidades.

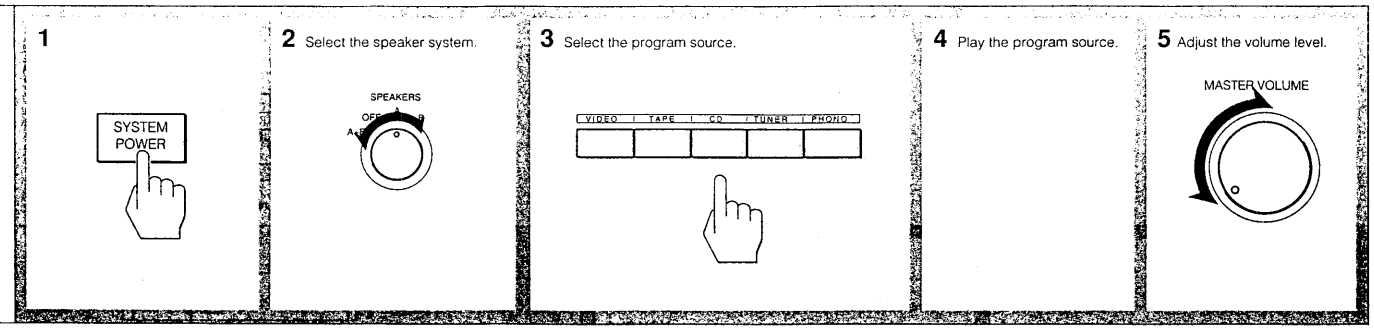
扁形連接綫附

連接插頭與同色的連接器嚴格地相連接（藍對藍，黑對黑）。



Listening to a Program Source





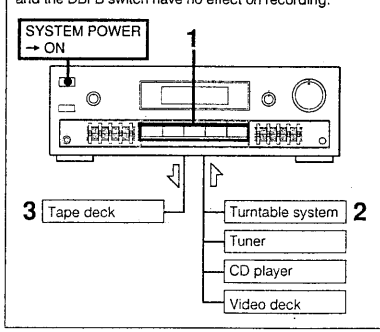
Selecting the speaker system
To drive speaker system A: Set SPEAKERS to "A".
To drive speaker system B: Set SPEAKERS to "B".
To drive both speakers: Set SPEAKERS to "A + B".
For headphone listening only: Set SPEAKERS to "OFF".

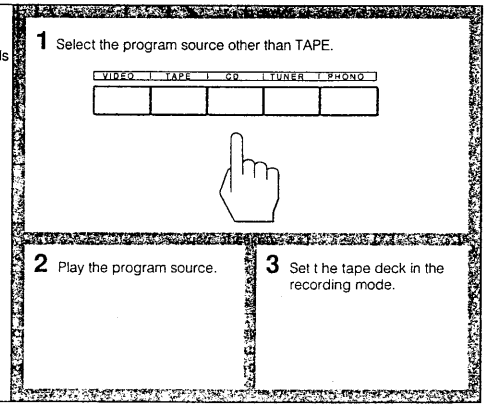
Notes
- When SPEAKERS is set to "A + B", two pairs of speaker systems must be connected. Otherwise, no sound can be heard.
- The sound of rear (surround) speakers are not heard from the headphone.

Selecting the program source
For a record program, press PHONO.
For a tuner program, press TUNER.
For a CD program, press DC.
For a tape program, press TAPE.
For a video sound program, press VIDEO.

Recording

You can record any program source using a tape deck connected to the TAPE jacks.
The BALANCE, VOLUME, GRAPHIC EQUALIZER controls and the DBFB switch have no effect on recording.




1 Select the program source other than TAPE.
VIDEO | TAPE | CD | TUNER | PHONO
2 Play the program source.
3 Set t he tape deck in the recording mode.

SECTION 2
DIAGRAMS

2-1. DESCRIPTION ON IC101(μPD75206-717-3BE)

Pin	Port	I/O	ACT	RESET	Outside	
1	RESET	I				DIGIT9
2	t0	O	H	High	L	DIGIT8
3	t1	O	H	High	L	DIGIT7
4	t2	O	H	High	L	DIGIT6
5	t3	O	H	High	L	DIGIT5
6	t4	O	H	High	L	DIGIT4
7	t5	O	H	High	L	DIGIT3
8	t6	O	H	High	L	DIGIT2
9	t7	O	H	High	L	DIGIT1
10	t8	O	H	High	L	NC
11	t9	O	H	High	L	DBFB
12	t10	O	H	High	L	FRONT MUTE
13	t11	O	H	High	L	REAR MUTE
14	t12	O	H	High	L	DRLC CONTROL
15	t13	O	H	High	L	DRLC SW A
16	t14	O	H	High	L	DRLC SW B
17	t15	O	H	High	L	−30V
18	Vload		−	High		−4V
19	Vpre		−	High		NC
20	s9	O	H	High	L	SEG9
21	s8	O	H	High	L	SEG8
22	s7	O	H	High	L	SEG7
23	s6	O	H	High	L	SEG6
24	s5	O	H	High	L	SEG5/KEY OUT5
25	s4	O	H	High	L	+5V
26	V_{DD}			High		SEG4/KEY OUT4
27	s3	O	H	High	L	SEG3/KEY OUT3
28	s2	O	H	High	L	SEG2/KEY OUT2
29	s1	O	H	High	L	SEG1/KEY OUT1
30	s0	O	H	High	L	KEY IN 1
31	p00	I	H	In	L	KEY IN 2
32	p01	I	H	In	L	

High : High − impedance status
In : Input status

Pin	Port	I/O	ACT	RESET	Outsided	
33	p02	I	H	In	L	KEY IN 3
34	p03	I	H	In	L	KEY IN 4
35	p10	I	H	In		RM－1
36	p11	I	H	In		RM－2
37	p12	I	L	In		DRLC SW
38	p13	I	L	In		POWER SW
39	p20	O	H	In	L	ST LC7535/LC7822
40	p21	O	L	In	L	ST LV1001M
41	p22	O	H	In	L	SV MSM59371
42	p23	O	H	In	L	VOL +
43	p30	O	H	In	L	VOL －
44	p31	O	H	In	L	VIDEO A
45	p32	O	H	In	L	VIDEO B
46	p33	O	L	In	L	TC PAUSE/PRO LOGIC
47	p60	O	H	In	L	STOP
48	p61	O	H	In	L	CLOCK
49	p62	O	H	In	L	DATA
50	p63	O	H	In	L	FRONT SP relay
51	p40	O	L	In	L	RECOUT SW V1
52	p41	O	L	In	L	RECOUT SW V2
53	p42	O	L	In	L	RECOUT SW TAPE
54	p43	O	H	In	L	POWER RELAY
55	ppo	O	H	In	L	REAR SP relay
56	x1					
57	x2					
58	Vss					
59	xt1					
60	zt2					
61	p50	O	H	In		DRLC READY
62	p51	O	H	In		MIX SW
63	p52	O	H	In		DOLBY SW
64	p53	O	H	In		SIM SW

High : High-impedance status

In : Input status

2-2. KEY OPERATION

Key input has priority over serial input.

(1) Setting

KEY OUT / KEY IN	S0	S1	S2	S3	S4
P00	PHONO	TUNER	CD	TAPE	VIDEO01
P02	DBFB	DELAY	DOLBY	HALL	SIMULATED

Note 1. SURROUND ON/OFF.

(2) FUNCTION Key (PHONO,TUNER, CD, TAPE, VIDEO1-4) operation
These keys execute operations below when pressed.
FUNCTION IC ·····Serial data
REC OUT SW ·····Static data
VIDEO SW·····Static data
FRONT MUTE·····One shot
REAR MUTE ·····One shot

(3) REAR MUTE PORT
The port is turned to "H" by switching to SURR ON, MODE or FUNCTION.
(Key input, Serial input)
Also the port is "H" three seconds after POWER ON is selected.
REAR MUTE PORT has priority over other ports to output when POWER OFF is selected and operates when SUB VOLUME is turned to ∞.
However there is no output for the port switching the main FUNC TION when DRLC ON is selected.

(4) DRLC CONTROL PORT (used for SP relay too)
The port is turned to "H" only when DRLC ON is selected. (Key input, Serial input)

(5) POWER RELAY PORT
The port is turned to "H" when either POWER ON or DRLC ON is selected. (Key input, Serial input RM-1, RM-2) Both MAIN and SUB are turned OFF when ALL OFF serial input is selected.

(6) DOLBY PORT
The port is turned to "L" HALL or SIM is selected. (Key input, Serial input)

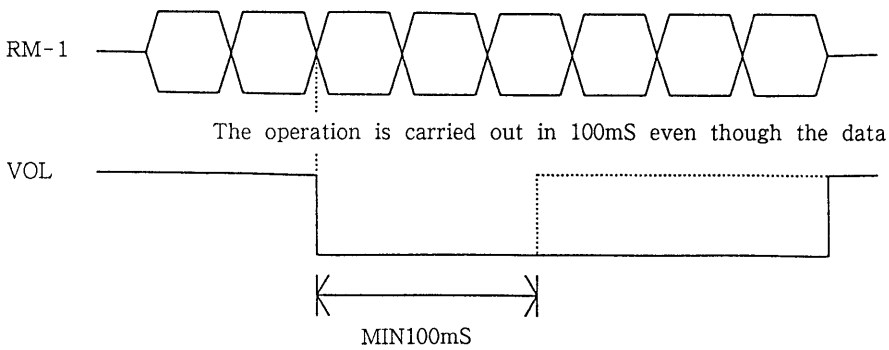
(7) SIM PORT
The port is turned to "L" when SIM is selected. (Key input, Serial input)

The relation between Switch ON and FUNCTION

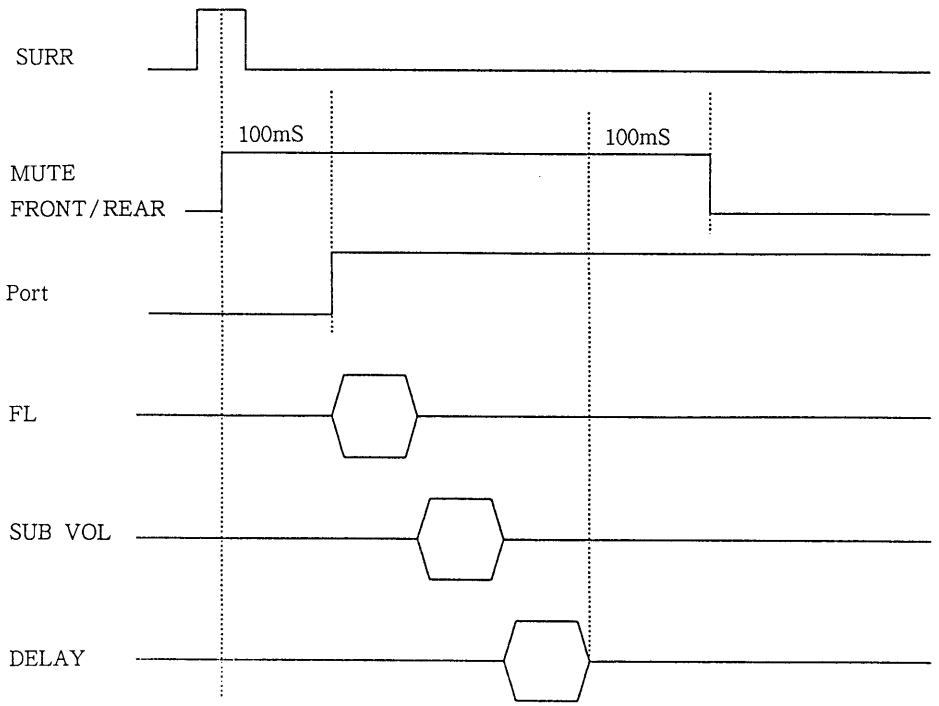
SW	TA-AX311/AV411
1. PHONO	10000001
2. TUNER	01000001
3. CD	00100001
4. TAPE	00010000
5. VIDEO 3	none
6. VIDEO 2	none
7. VIDEO 1	00000011
8. VIDEO 4	none

Timing chart

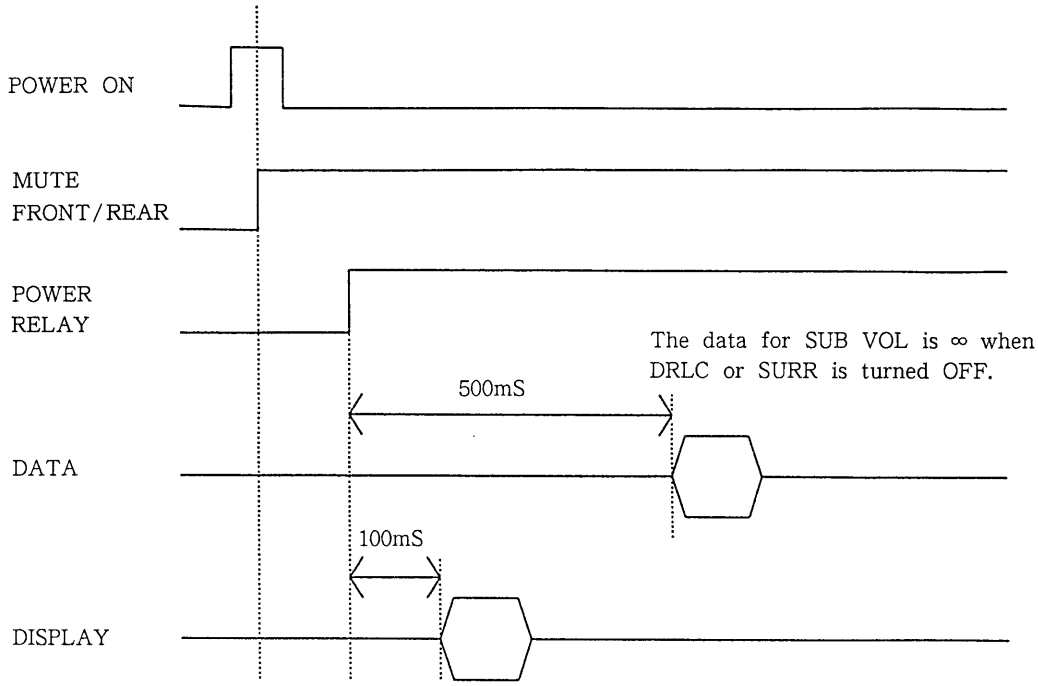
VOL +/−



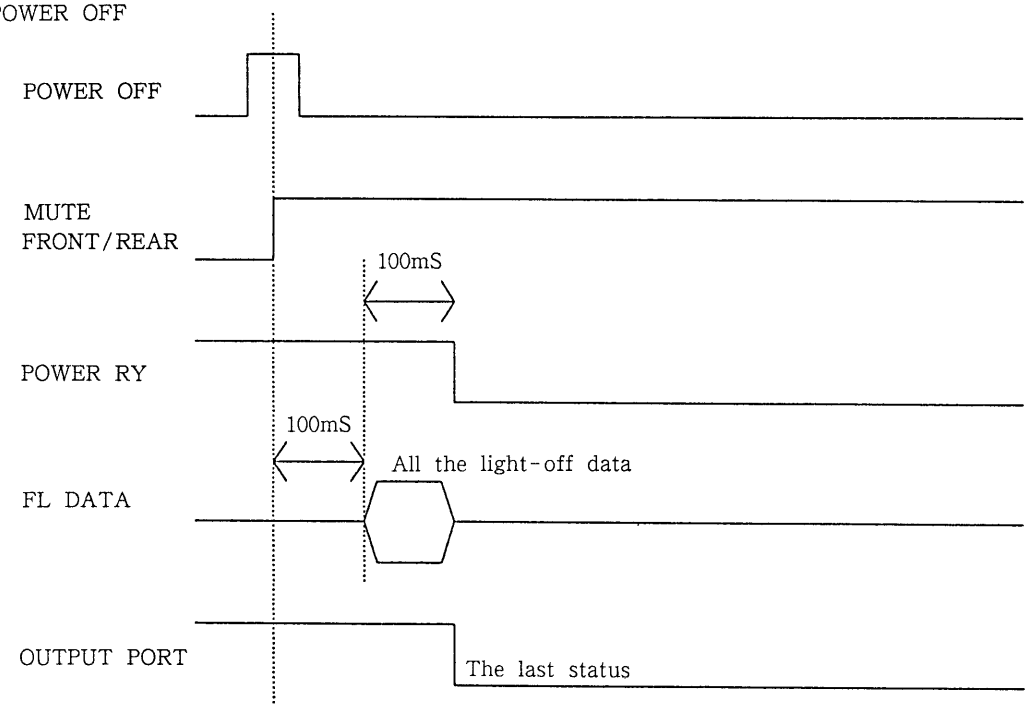
MUTE must be switched 100mS forward or backward during SURR MODE switching (including SURR/OFF switch).



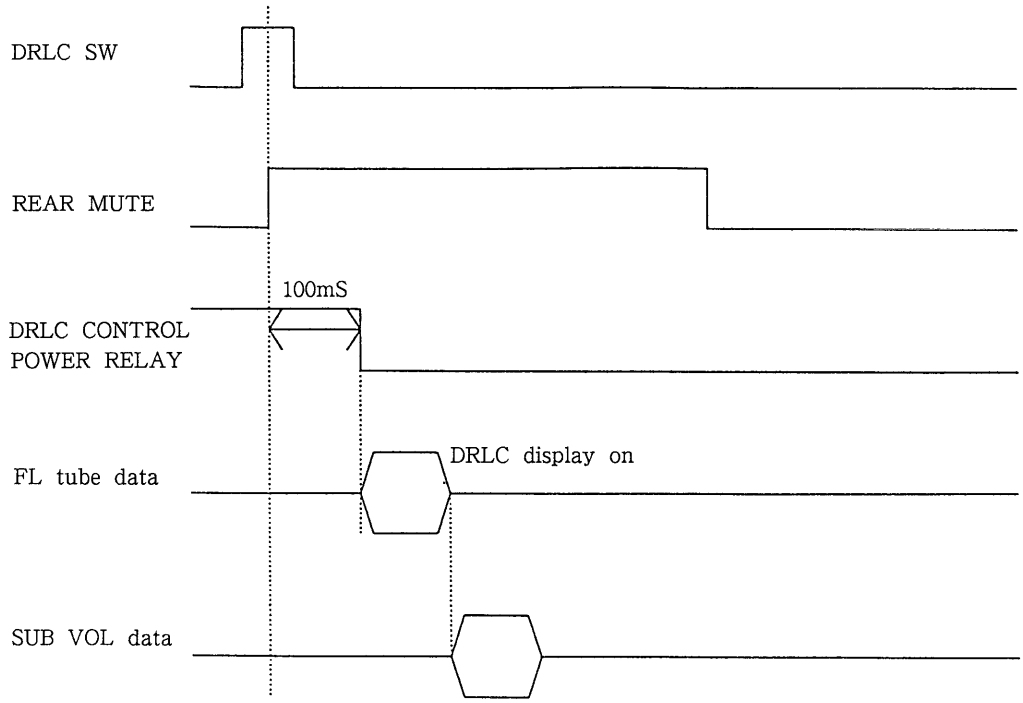
POWER ON (The same operation when starting the buck up system.)



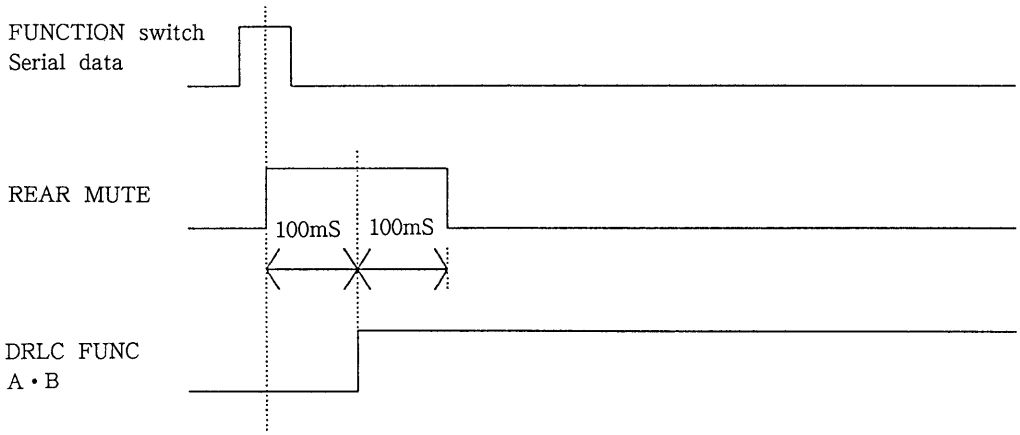
POWER OFF



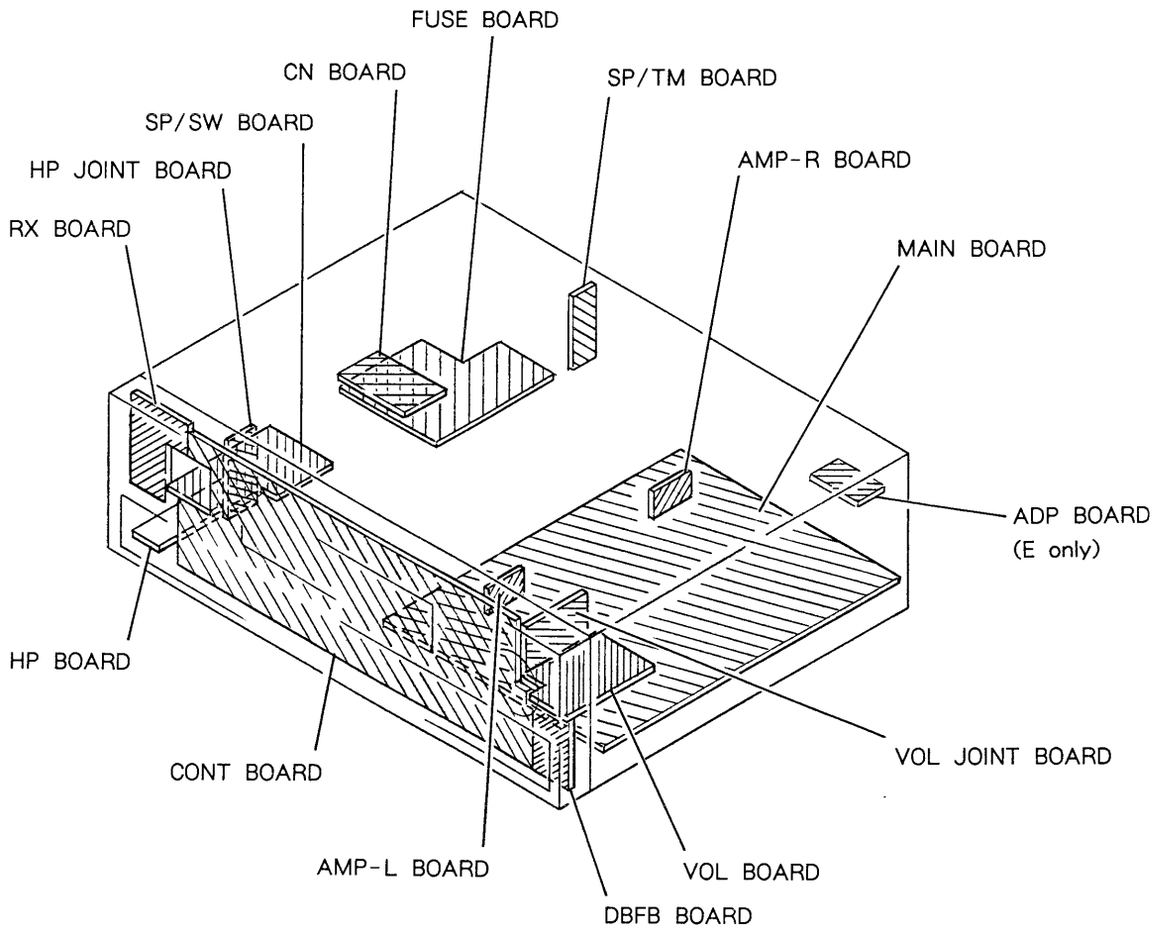
Timing chart
DRLC



DRLC FUNCTION

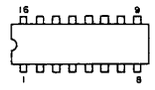


2-3. CIRCUIT BOARDS LOCATION



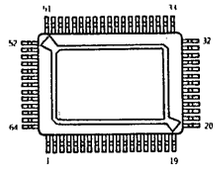
2-4. SEMICONDUCTOR LEAD LAYOUTS

CXA1100P
CXA1198AP
M5226P
TC4051BPHB



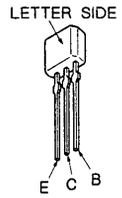
(TOP VIEW)

μ PD75206GF-717-3BE

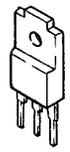


(TOP VIEW)

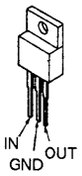
2SA1175-HFE
2SC2785-HFE



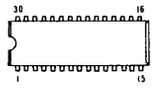
2SA1684-LK
2SC4431-LK
2SD2012



M5F7805L
M5F7812L

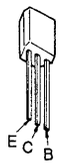


LC7822

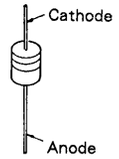


(TOP VIEW)

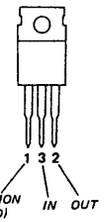
DTA124ES
DTA144ES
DTC114ES
DTC124ES
DTC144ES
2SC2603-FE



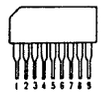
HZS6C2L
HZS6C3L
HZS30-1L



M5F7912L

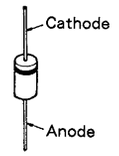


IR2E31A



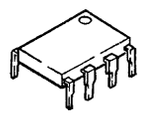
2SK246-Y

10E2N
1S1585

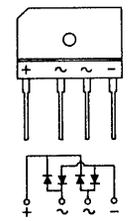


LA3160
M5128AL
μ PC1237HA

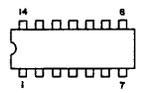
LB1639



RBA-402
RBV-602-01

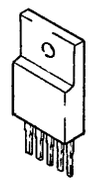


LC4966
MC14066BCP
TC4001BP
μ PD4011BC



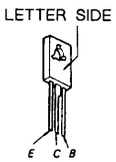
(TOP VIEW)

SI-18752N



2SA733-QP
2SC945-QP
2SC1815-Y

2SC2682-QPE



SEL2210S-CD

2-5. PRINTED WIRING BOARDS

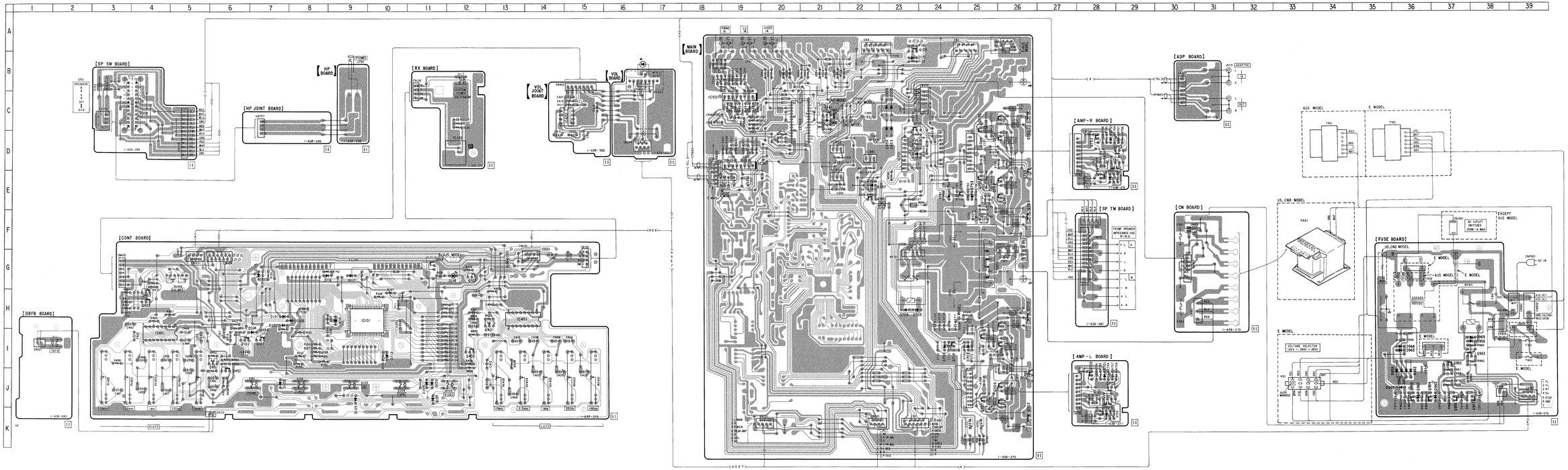
- **See page 13 for Semiconductor Lead Layouts.**

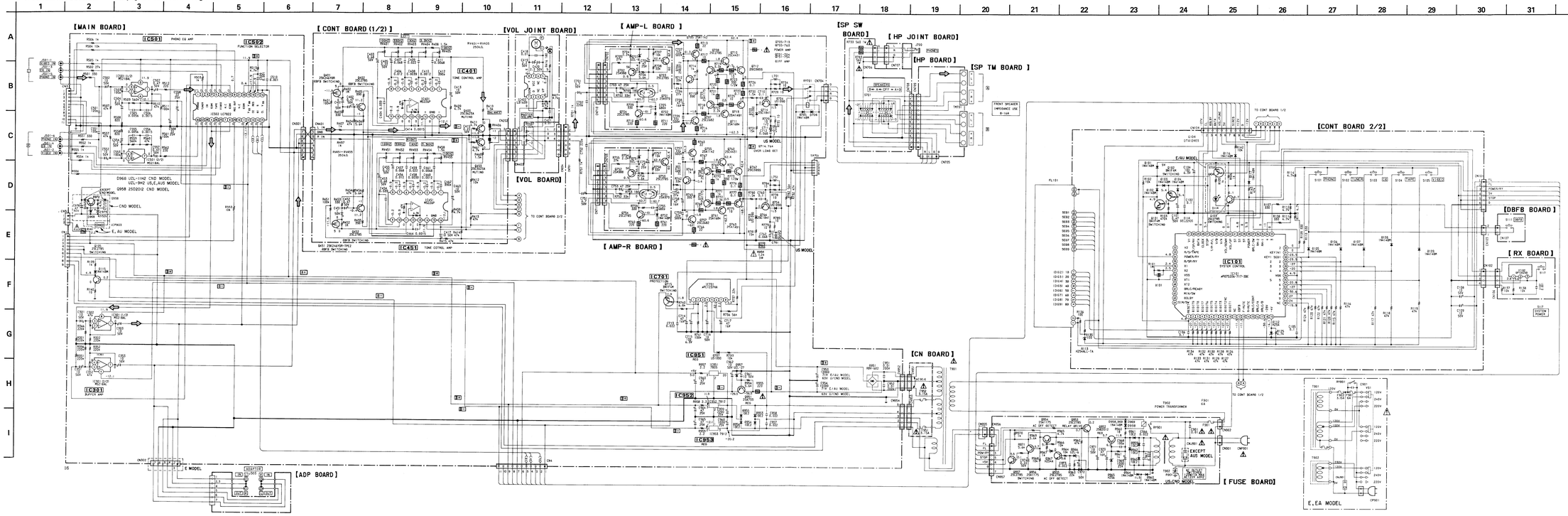
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D101	H-7	Q708	I-26
D102	H-7	Q709	J-26
D103	H-8	Q710	H-26
D104	H-7	Q711	I-26
D105	J-9	Q712	H-26
D106	J-7	Q713	K-26
D107	J-11	Q714	I-24
D108	J-11	Q715	I-23
D109	J-11	Q751	D-28
D112	I-10	Q752	D-28
D113	G-7	Q753	D-29
D114	G-12	Q754	E-28
D115	B-23	Q755	D-25
D116	G-8	Q756	D-25
D117	G-9	Q757	E-25
D701	J-28	Q758	D-26
D702	K-28	Q759	E-26
D703	I-25	Q760	C-26
D704	I-24	Q761	E-26
D705	H-23	Q762	C-26
D706	H-23	Q763	F-26
D707	D-23	Q764	E-25
D751	D-28	Q951	E-22
D752	E-28	Q952	I-37
D753	E-25	Q953	I-37
D754	E-24	Q954	J-36
D951	G-25	Q955	J-36
D953	C-23	Q956	J-37
D954	C-23	Q957	J-37
D955	C-23	Q958	C-21
D956	C-22		
D957	E-22	IC101	H-9
D958	I-37	IC102	D-12
D959	J-36	IC301	D-19
D960	J-36	IC401	H-13
D961	J-36	IC402	C-15
D962	J-36	IC451	I-4
D963	I-36	IC501	C-19
D964	I-36	IC502	C-20
D965	J-37	IC701	D-23
D966	J-36	IC951	D-22
D967	J-36	IC952	D-21
D968	C-21	IC953	E-21
D969	I-37		
Q101	I-7		
Q102	I-6		
Q103	C-12		
Q104	G-11		
Q105	A-23		
Q401	H-13		
Q402	I-12		
Q403	H-4		
Q451	I-6		
Q452	I-6		
Q453	G-4		
Q701	J-28		
Q702	J-28		
Q703	J-28		
Q704	K-28		
Q705	I-25		
Q706	J-26		
Q707	J-25		

Note on Mounting Diagram:

◆ o—— : parts extracted from the component side.





Note on Schematic Diagram:

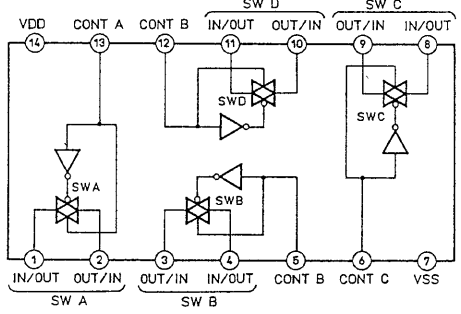
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- : nonflammable resistor.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

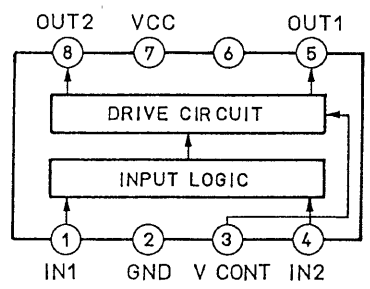
- +B : B+ Line
- -VD : B- Line
  no mark : No-signal,PHONO MODE
- Voltages are taken with a VOM (input impedance 10M Ω)
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : PHONO

2-7. IC BLOCK DIAGRAMS

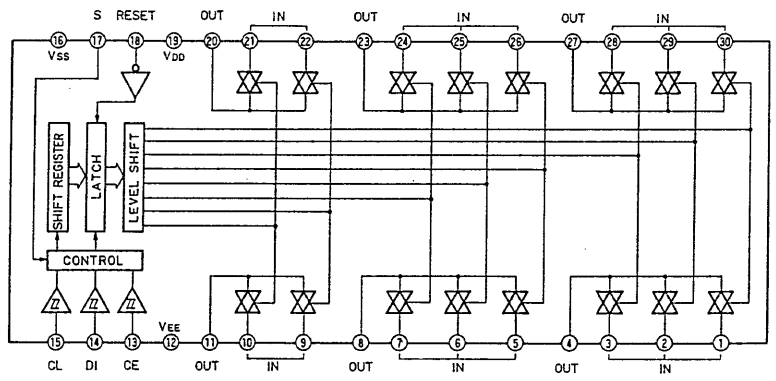
IC302 LC4966



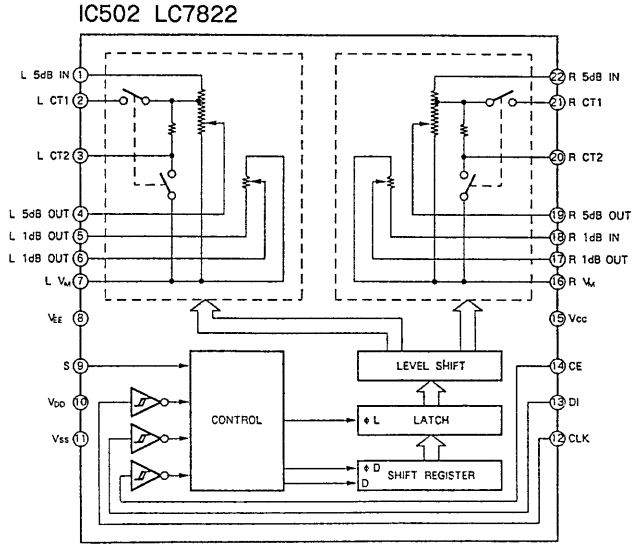
IC402 LB1639



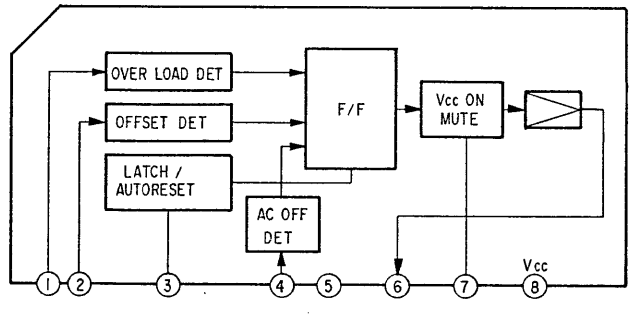
IC404 LC7535



IC502 LC7822



IC701 μPC1237HA



SECTION 3
EXPLODED VIEWS

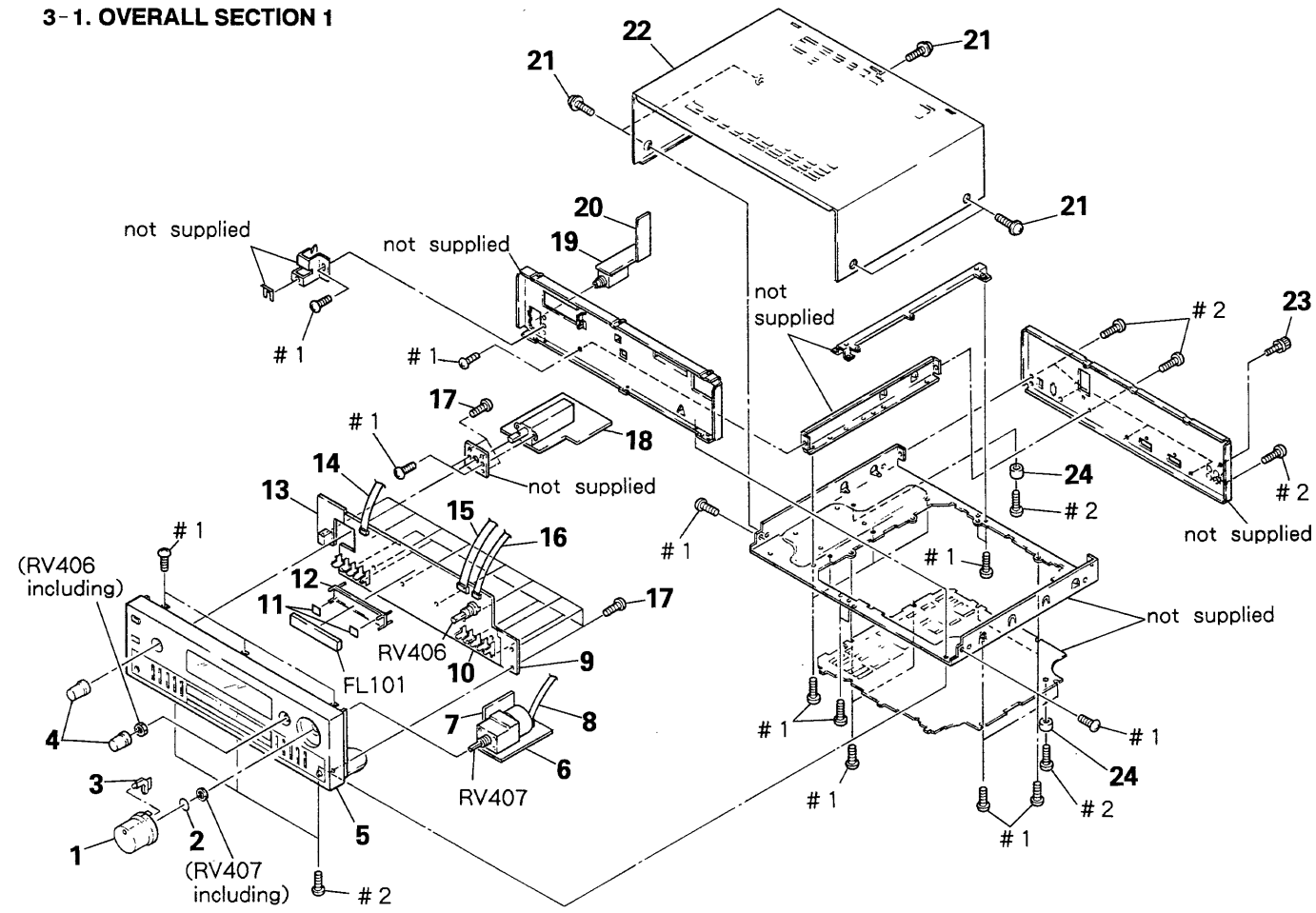
NOTE :

- −XX, −X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

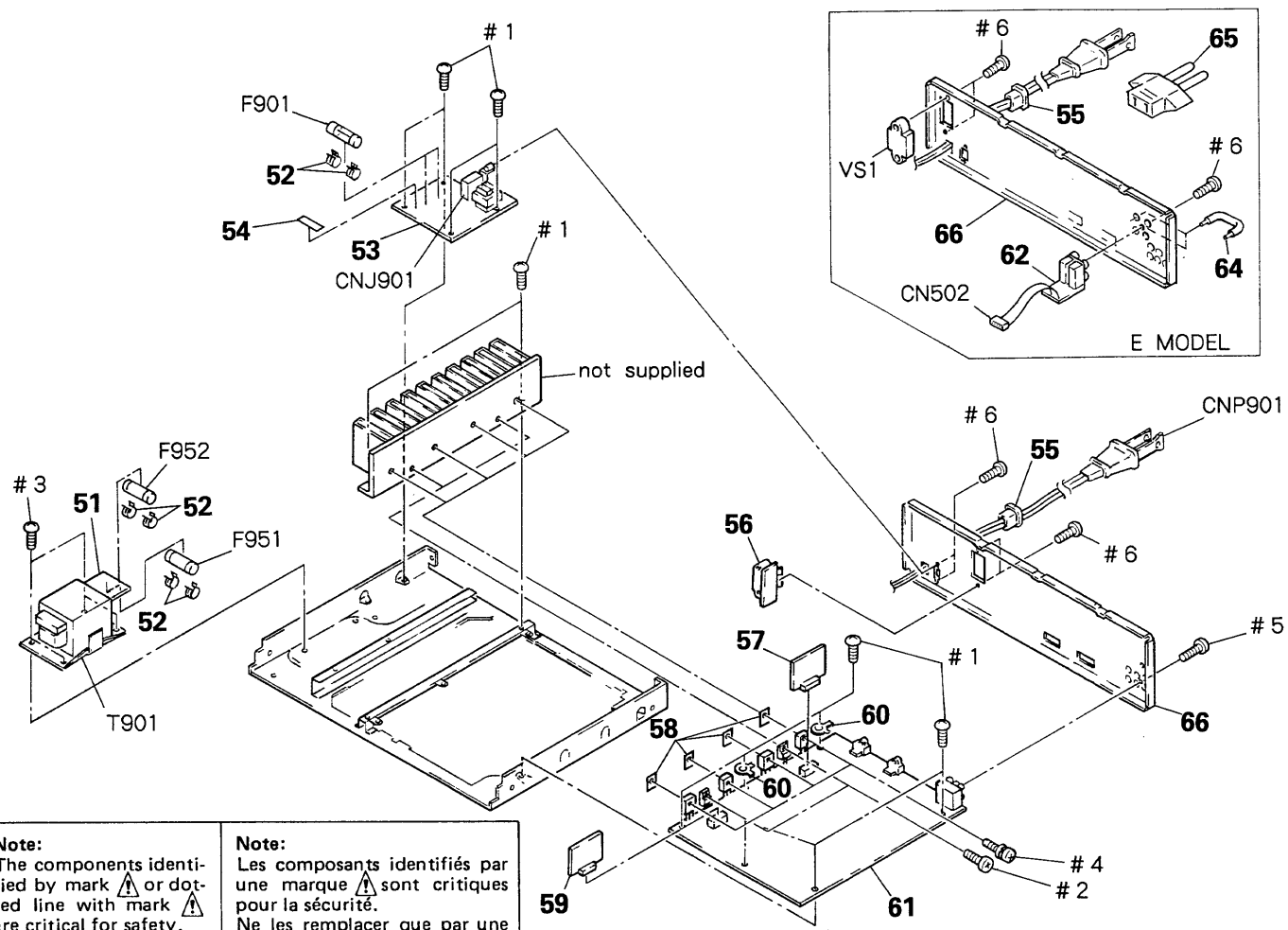
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

3-1. OVERALL SECTION 1



Ref. No.	Part No.	Description	Remarks
1	4-943-091-01	KNOB (VOL)	
2	3-350-426-01	SPRING, RING	
3	4-943-092-01	PLATE(VOL), LIGHT GUIDE	
4	4-943-420-01	KNOB (DIA. 19)	
5	A-4323-865-A	PANEL ASSY, FRONT (US, Canadian)	
	A-4323-867-A	PANEL ASSY, FRONT (E, Australian)	
6	* 1-638-278-11	VOL BOARD	
7	* 1-638-279-11	VOL JOINT BOARD	
8	1-590-485-11	WIRE, FLAT TYPE (7 CORE)	
9	* 1-638-280-11	DBFB BOARD	
10	* A-4341-710-A	CONT BOARD, COMPLETE (US, Canadian)	
	* A-4341-715-A	CONT BOARD, COMPLETE (E, Australian)	
11	* 4-921-941-01	CUSHION (FL)	
12	* 4-943-107-01	HOLDER (FL TUBE)	
13	* 1-638-277-11	RX BOARD	
14	1-590-486-11	WIRE, FLAT TYPE (7 CORE)	
15	1-590-488-11	WIRE, FLAT TYPE (11 CORE)	
16	1-590-538-11	WIRE, FLAT TYPE (7 CORE)	
17	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
18	* 1-638-284-11	SP SW BOARD	
19	* 1-638-285-11	HP BOARD	
20	* 1-638-286-11	HP JOINT BOARD	
21	3-704-366-01	SCREW (CASE) (M3X8)	
22	4-931-031-11	CASE	
23	3-706-165-00	SCREW	
24	X-4941-229-1	FOOT ASSY (F2112S-M)	

3-2. OVERALL SECTION 2



Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
51	* 1-638-273-11	CN BOARD	
52	1-533-217-31	HOLDER, FUSE	
53	* 1-638-276-11	FUSE BOARD	
54	* 3-701-947-16	LABEL (T3.15A), FUSE (E, Australian)	
55	* 3-703-244-00	BUSHING (2104), CORD (US, Canadian, Australian)	
	* 3-703-571-11	BUSHING (S) (4516), CORD (E)	
56	* 1-638-287-11	SP TM BOARD	
57	* 1-638-272-11	AMP-R BOARD	
58	4-911-232-01	SHEET, INSULATING	
59	* 1-638-271-11	AMP-L BOARD	
60	* 4-942-204-01	PLATE, GROUND	
61	* A-4341-708-A	MAIN BOARD, COMPLETE (US)	
	* A-4341-713-A	MAIN BOARD, COMPLETE (E)	
	* A-4341-814-A	MAIN BOARD, COMPLETE (Australian)	
	* A-4341-950-A	MAIN BOARD, COMPLETE (Canadian)	
64	1-535-530-11	PLUG, JUMPER (E)	
65	⚠1-569-007-11	ADAPTER, CONVERSION 2P (E)	

Ref. No.	Part No.	Description	Remarks
66	* 4-943-458-11	PANEL, BACK (US)	
	* 4-943-458-21	PANEL, BACK (E)	
	* 4-943-458-31	PANEL, BACK (Australian)	
	* 4-943-458-41	PANEL, BACK (Canadian)	
CN502	1-569-132-11	PIN, CONNECTOR 7P	
CNJ901	⚠1-540-057-11	OUTLET AC (POLAR) (US, Canadian)	
	⚠1-540-038-11	OUTLET AC (NON POLAR) (E)	
CNP901	⚠1-551-188-XX	CORD, POWER (E)	
	⚠1-551-478-00	CORD, POWER (US, Canadian)	
	⚠1-559-912-11	CORD, POWER (Australian)	
F901	⚠1-532-237-00	FUSE, TIME LAG (E, Australian)	
	⚠1-576-110-11	FUSE (US, Canadian)	
F951	⚠1-532-237-00	FUSE, TIME LAG (E, Australian)	
	⚠1-576-107-11	FUSE (US, Canadian)	
F952	⚠1-532-237-00	FUSE, TIME LAG (E, Australian)	
	⚠1-576-107-11	FUSE (US, Canadian)	
T901	⚠1-450-368-11	TRANSFORMER, POWER (US, Canadian)	
	⚠1-450-369-11	TRANSFORMER, POWER (E, Australian)	
VS1	* 1-571-515-11	SWITCH, POWER VOLTAGE SELECTION (E)	

SECTION 4

ADP AMP-R

ELECTRICAL PARTS LIST

NOTE :

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be defferent from the parts specified in the diagrams or the components used on the set.
- −XX, −X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL : metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA... : μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...
- CAPACITORS :
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remarks
*	1-638-274-11	ADP BOARD (E)			
		**********			
		< CONNECTOR >			
CN502	1-569-132-11	PIN, CONNECTOR			
		< JACK >			
J503	1-580-905-11	JACK, PIN 4P			
	(E)				
*	1-638-271-11	AMP-L BOARD			
		< CAPACITOR >			
C703	1-124-477-11	ELECT	47uF	20% 25V	
C704	1-124-477-11	ELECT	47uF	20% 25V	
C705	1-162-292-31	CERAMIC	680PF	10% 50V	
		< CONNECTOR >			
CN702	1-560-943-00	PIN, CONNECTOR 9P			
		< DIODE >			
D701	8-719-933-40	DIODE	HZS6C2L		
D702	8-719-987-63	DIODE	1N4148M		
		< TRANSISTOR >			
Q701	8-729-620-18	TRANSISTOR	2SA979-FG		
Q702	8-729-108-14	TRANSISTOR	2SA988-F		
Q703	8-729-119-78	TRANSISTOR	2SC2785-HFE	(Canadian, Australian, E)	
Q703	8-729-119-78	TRANSISTOR	2SC2785-HFE	(US)	
Q704	8-729-119-78	TRANSISTOR	2SC2785-HFE		

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R702	1-249-435-11	CARBON	33K	5% 1/4W	
R703	1-249-409-11	CARBON	220	5% 1/4W	
R704	1-249-421-11	CARBON	2.2K	5% 1/4W	
R705	1-249-434-11	CARBON	27K	5% 1/4W	
R706	1-249-426-11	CARBON	5.6K	5% 1/4W	
R707	1-249-429-11	CARBON	10K	5% 1/4W	
R708	1-249-435-11	CARBON	33K	5% 1/4W	
R709	1-249-411-11	CARBON	330	5% 1/4W	
R710	⚠1-247-704-11	CARBON	220	5% 1/4W	
R711	⚠1-247-704-11	CARBON	220	5% 1/4W	
**********					
*	1-638-272-11	AMP-R BOARD			
		**********			
		< CAPACITOR >			
C753	1-124-477-11	ELECT	47uF	20% 25V	
C754	1-124-477-11	ELECT	47uF	20% 25V	
C755	1-162-292-31	CERAMIC	680PF	10% 50V	
		< CONNECTOR >			
CN703	1-560-943-00	PIN, CONNECTOR 9P			
		< DIODE >			
D751	8-719-933-40	DIODE	HZS6C2L		
D752	8-719-987-63	DIODE	1N4148M		

AMP-R CN CONT

Ref. No.	Part No.	Description				Remarks
		< TRANSISTOR >				
Q751	8-729-620-18	TRANSISTOR	2SA979-FG			
Q752	8-729-108-14	TRANSISTOR	2SA988-F			
Q753	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q754	8-729-119-78	TRANSISTOR	2SC2785-HFE			
		< RESISTOR >				
R752	1-249-435-11	CARBON	33K	5%	1/4W	
R753	1-249-409-11	CARBON	220	5%	1/4W	
R754	1-249-421-11	CARBON	2.2K	5%	1/4W	
R755	1-249-434-11	CARBON	27K	5%	1/4W	
R756	1-249-426-11	CARBON	5.6K	5%	1/4W	
R757	1-249-429-11	CARBON	10K	5%	1/4W	
R758	1-249-435-11	CARBON	33K	5%	1/4W	
R759	1-249-411-11	CARBON	330	5%	1/4W	
R760	⚠1-247-704-11	CARBON	220	5%	1/4W	
R761	⚠1-247-704-11	CARBON	220	5%	1/4W	
**********						
	* 1-638-273-11	CN BOARD				
		********				
		< FUSE >				
F951	⚠1-576-107-11	FUSE (US, Canadian)				
F951	⚠1-532-237-00	FUSE, TIME LAG (Australian, E)				
F952	⚠1-532-237-00	FUSE, TIME LAG (Australian, E)				
F952	⚠1-576-107-11	FUSE (US, Canadian)				
**********						
	* A-4341-710-A	CONT BOARD, COMPLETE (US, Canadian)				
		**********				
	* A-4341-715-A	CONT BOARD, COMPLETE (E, Australian)				
		**********				
	* 1-638-275-11	CONT BOARD				
	1-241-434-11	RES, VAR, SLIDE 250K				
	1-533-217-31	HOLDER, FUSE				
	4-352-844-01	PIN, LEAD, COATING				
	* 4-921-941-01	CUSHION (FL)				
	* 4-943-107-01	HOLDER (FL TUBE)				

Ref. No.	Part No.	Description				Remarks
		< CAPACITOR >				
C101	1-124-902-00	ELECT	0.47uF	20%	50V	
C102	1-130-495-00	MYLAR	0.1uF	5%	50V	
C104	1-124-443-00	ELECT	100uF	20%	10V	
C105	1-130-495-00	MYLAR	0.1uF	5%	50V	
C106	1-130-495-00	MYLAR	0.1uF	5%	50V	
C108	1-136-171-00	FILM	0.33uF	5%	50V	
C109	1-136-171-00	FILM	0.33uF	5%	50V	
C401	1-124-903-11	ELECT	1uF	20%	50V	
C402	1-124-902-00	ELECT	0.47uF	20%	50V	
C403	1-124-254-00	ELECT	0.68uF	20%	50V	
C404	1-130-490-11	MYLAR	0.039uF	5%	50V	
C405	1-124-464-11	ELECT	0.22uF	20%	50V	
C406	1-130-484-00	MYLAR	0.012uF	5%	50V	
C407	1-130-493-00	MYLAR	0.068uF	5%	50V	
C408	1-130-478-00	MYLAR	0.0039uF	5%	50V	
C409	1-130-487-00	MYLAR	0.022uF	5%	50V	
C410	1-164-086-11	CERAMIC	0.0012uF	10%	50V	
C411	1-130-481-00	MYLAR	0.0068uF	5%	50V	
C412	1-162-289-31	CERAMIC	390PF	10%	50V	
C413	1-124-907-11	ELECT	10uF	20%	50V (US, Canadian)	
C414	1-161-374-11	CERAMIC	0.0015uF	20%	50V	
C415	1-136-169-00	FILM	0.22uF	5%	50V	
C417	1-124-907-11	ELECT	10uF	20%	50V (US, Canadian)	
C451	1-124-903-11	ELECT	1uF	20%	50V	
C452	1-124-902-00	ELECT	0.47uF	20%	50V	
C453	1-124-254-00	ELECT	0.68uF	20%	50V	
C454	1-130-490-11	MYLAR	0.039uF	5%	50V	
C455	1-124-464-11	ELECT	0.22uF	20%	50V	
C456	1-130-484-00	MYLAR	0.012uF	5%	50V	
C457	1-130-493-00	MYLAR	0.068uF	5%	50V	
C458	1-130-478-00	MYLAR	0.0039uF	5%	50V	
C459	1-130-487-00	MYLAR	0.022uF	5%	50V	
C460	1-164-086-11	CERAMIC	0.0012uF	10%	50V	
C461	1-130-481-00	MYLAR	0.0068uF	5%	50V	
C462	1-162-289-31	CERAMIC	390PF	10%	50V	
C463	1-124-907-11	ELECT	10uF	20%	50V (US, Canadian)	
C464	1-161-374-11	CERAMIC	0.0015uF	20%	50V	

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN101	* 1-568-850-11	SOCKET, CONNECTOR 7P	
CN102	* 1-565-480-11	CONNECTOR, BOARD TO BOARD 4P	
CN104	* 1-568-854-11	SOCKET, CONNECTOR 11P	
CN401	* 1-568-850-11	SOCKET, CONNECTOR 7P	
CN402	* 1-561-651-00	SOCKET, CONNECTOR 7P	
		< DIODE >	
D101	8-719-987-63	DIODE N4148M	
D102	8-719-987-63	DIODE N4148M	
D103	8-719-987-63	DIODE N4148M	
D104	8-719-987-63	DIODE N4148M	
D105	8-719-987-63	DIODE N4148M	
D106	8-719-987-63	DIODE N4148M	
D107	8-719-987-63	DIODE N4148M	
D108	8-719-987-63	DIODE N4148M	
D109	8-719-987-63	DIODE N4148M	
D112	8-719-985-53	DIODE HZS4ALL	
D113	8-719-985-53	DIODE HZS4ALL	
D114	8-719-301-37	DIODE SEL2210S-CD (Australian, E)	
D116	8-719-987-63	DIODE N4148M	
D117	8-719-987-63	DIODE N4148M	
		< FILTER >	
FL101	1-519-663-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC101	8-759-154-40	IC uPD75206-717-3BE	
IC401	8-759-602-04	IC M5226P	
IC451	8-759-602-04	IC M5226P	
		< TRANSISTOR >	
Q101	8-729-900-36	TRANSISTOR DTC124ES	
Q102	8-729-900-63	TRANSISTOR DTA124ES	
Q103	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q104	8-729-900-63	TRANSISTOR DTA124ES (Australian, E)	
Q401	8-729-224-61	TRANSISTOR 2SK246-Y	
Q402	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q403	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q451	8-729-224-61	TRANSISTOR 2SK246-Y	
Q452	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q453	8-729-141-30	TRANSISTOR 2SC3623A-LK	

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R101	1-247-903-00	CARBON	1M	5% 1/4W	
R102	1-249-429-11	CARBON	10K	5% 1/4W	
R103	1-247-895-00	CARBON	470K	5% 1/4W	
R105	1-249-417-11	CARBON	1K	5% 1/4W (Australian, E)	
R106	1-249-417-11	CARBON	1K	5% 1/4W	
R107	1-249-411-11	CARBON	330	5% 1/4W	
R108	1-249-411-11	CARBON	330	5% 1/4W	
R109	1-249-411-11	CARBON	330	5% 1/4W	
R110	1-249-411-11	CARBON	330	5% 1/4W	
R111	1-249-425-11	CARBON	4.7K	5% 1/4W	
R112	1-249-425-11	CARBON	4.7K	5% 1/4W	
R113	1-249-425-11	CARBON	4.7K	5% 1/4W	
R114	1-249-425-11	CARBON	4.7K	5% 1/4W	
R115	1-249-437-11	CARBON	47K	5% 1/4W	
R116	1-249-437-11	CARBON	47K	5% 1/4W	
R117	1-249-437-11	CARBON	47K	5% 1/4W	
R118	1-249-437-11	CARBON	47K	5% 1/4W	
R119	1-249-437-11	CARBON	47K	5% 1/4W	
R120	1-249-437-11	CARBON	47K	5% 1/4W	
R121	1-249-437-11	CARBON	47K	5% 1/4W	
R122	1-249-437-11	CARBON	47K	5% 1/4W	
R123	1-249-437-11	CARBON	47K	5% 1/4W	
R124	1-249-437-11	CARBON	47K	5% 1/4W	
R125	1-249-425-11	CARBON	4.7K	5% 1/4W	
R126	1-249-437-11	CARBON	47K	5% 1/4W	
R127	1-249-437-11	CARBON	47K	5% 1/4W	
R128	1-249-437-11	CARBON	47K	5% 1/4W	
R129	1-249-437-11	CARBON	47K	5% 1/4W	
R130	1-249-437-11	CARBON	47K	5% 1/4W	
R131	1-249-437-11	CARBON	47K	5% 1/4W	
R132	1-249-437-11	CARBON	47K	5% 1/4W	
R133	1-249-437-11	CARBON	47K	5% 1/4W	
R134	1-249-437-11	CARBON	47K	5% 1/4W	
R135	1-249-405-11	CARBON	100	5% 1/4W	
R136	1-249-405-11	CARBON	100	5% 1/4W	
R142	1-249-429-11	CARBON	10K	5% 1/4W	
R143	1-249-437-11	CARBON	47K	5% 1/4W	
R401	1-249-441-11	CARBON	100K	5% 1/4W	
R402	1-247-903-00	CARBON	1M	5% 1/4W	
R403	1-249-411-11	CARBON	330	5% 1/4W	
R404	1-249-437-11	CARBON	47K	5% 1/4W	
R405	1-249-412-11	CARBON	390	5% 1/4W	
R406	1-249-426-11	CARBON	5.6K	5% 1/4W	
R407	1-249-417-11	CARBON	1K	5% 1/4W	

CONT DBFB FUSE

Ref. No.	Part No.	Description				Remarks
R408	1-249-419-11	CARBON	1.5K	5%	1/4W	
R409	1-249-425-11	CARBON	4.7K	5%	1/4W	
R410	1-249-419-11	CARBON	1.5K	5%	1/4W	
R411	1-249-425-11	CARBON	4.7K	5%	1/4W	
R412	1-249-429-11	CARBON	10K	5%	1/4W	
R413	1-249-437-11	CARBON	47K	5%	1/4W	
R414	1-249-437-11	CARBON	47K	5%	1/4W	
R415	1-249-437-11	CARBON	47K	5%	1/4W	
R451	1-249-441-11	CARBON	100K	5%	1/4W	
R452	1-247-903-00	CARBON	1M	5%	1/4W	
R453	1-249-411-11	CARBON	330	5%	1/4W	
R454	1-249-437-11	CARBON	47K	5%	1/4W	
R455	1-249-412-11	CARBON	390	5%	1/4W	
R456	1-249-426-11	CARBON	5.6K	5%	1/4W	
R457	1-249-417-11	CARBON	1K	5%	1/4W	
R458	1-249-419-11	CARBON	1.5K	5%	1/4W	
R459	1-249-425-11	CARBON	4.7K	5%	1/4W	
R460	1-249-419-11	CARBON	1.5K	5%	1/4W	
R461	1-249-425-11	CARBON	4.7K	5%	1/4W	
		< VARIABLE RESISTOR >				
RV401	1-241-434-11	RES, VAR, SLIDE 250K (100KHz)				
RV402	1-241-434-11	RES, VAR, SLIDE 250K (300KHz)				
RV403	1-241-434-11	RES, VAR, SLIDE 250K (1kHz)				
RV404	1-241-434-11	RES, VAR, SLIDE 250K (3.3KHz)				
RV405	1-241-434-11	RES, VAR, SLIDE 250K (10KHz)				
RV406	1-241-022-11	RES, VAR, CARBON 150K/150K (BALANCE)				
RV451	1-241-434-11	RES, VAR, SLIDE 250K (100KHz)				
RV452	1-241-434-11	RES, VAR, SLIDE 250K (300KHz)				
RV453	1-241-434-11	RES, VAR, SLIDE 250K (1kHz)				
RV454	1-241-434-11	RES, VAR, SLIDE 250K (3.3KHz)				
RV455	1-241-434-11	RES, VAR, SLIDE 250K (10KHz)				
		< SWITCH >				
S101	1-554-303-21	SWITCH, TACTILE (PHONE)				
S102	1-554-303-21	SWITCH, TACTILE (TUNER)				
S103	1-554-303-21	SWITCH, TACTILE (CD)				
S104	1-554-303-21	SWITCH, TACTILE (TAPE)				
S105	1-554-303-21	SWITCH, TACTILE (VIDEO)				
		< CRYSTAL >				
X101	1-567-775-11	VIBRATOR, CERAMIC				

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Ref. No.	Part No.	Description				Remarks
	* 1-638-280-11	DBFB BOARD				
		**********				
		< CONNECTOR >				
CN107	* 1-568-951-11	PIN, CONNECTOR 2P				
		< SWITCH >				
S111	1-554-303-21	SWITCH, TACTILE (DBFB)				

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	* 1-638-276-11	FUSE BOARD				
		**********				
		< CAPACITOR >				
C901	1-161-744-00	CERAMIC	0.01uF		400V	
C966	1-130-487-00	MYLAR	0.022uF	5%	50V	
C967	1-130-487-00	MYLAR	0.022uF	5%	50V	
C968	1-162-282-31	CERAMIC	100PF	10%	50V	
C969	1-124-557-11	ELECT	1000uF	20%	25V	
C970	1-124-477-11	ELECT	47uF	20%	25V	
C971	1-124-907-11	ELECT	10uF	20%	50V	
C972	1-124-903-11	ELECT	1uF	20%	50V	
C973	1-130-487-00	MYLAR	0.022uF	5%	50V	
C974	1-124-464-11	ELECT	0.22uF	20%	50V	
		< CONNECTOR >				
CN901	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P				
CN902	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P				
CN903	1-535-139-00	BASE POST 2P (E)				
CN904	* 1-535-115-00	TERMINAL (E)				
CN905	* 1-535-116-00	TERMINAL (E)				
CN956	* 1-564-777-11	PLUG, CONNECTOR (2.5MM) 2P				
CN957	* 1-568-826-11	SOCKET, CONNECTOR 7P				
CNJ901	⚠1-540-057-11	OUTLET, AC (POLAR) (AC OUTLET) (US, Canadian)				
CNJ901	⚠1-540-038-11	OUTLET, AC (NONPOLAR) (1P) (E)				
		< DIODE >				
D958	8-719-987-63	DIODE	N4148M			
D959	8-719-200-77	DIODE	10E2N			
D960	8-719-200-77	DIODE	10E2N			
D961	8-719-200-77	DIODE	10E2N			
D962	8-719-200-77	DIODE	10E2N			

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

FUSE | HP | HP JOINT | MAIN

Ref. No.	Part No.	Description				Remarks
D963	8-719-987-63	DIODE	N4148M			
D964	8-719-987-63	DIODE	N4148M			
D965	8-719-933-41	DIODE	HZS6C3L			
D966	8-719-933-41	DIODE	HZS6C3L			
D967	8-719-985-53	DIODE	HZS4ALL			
D969	8-719-987-63	DIODE	11ES2			
		< FUSE >				
F901	⚠1-532-237-00	FUSE, TIME LAG (E, Australian)				
F901	⚠1-576-110-11	FUSE (US, Canadian)				
		< TRANSISTOR >				
Q952	8-729-209-15	TRANSISTOR	2SD2012			
Q953	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q954	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q955	8-729-119-78	TRANSISTOR	2SC2785-HFE			
Q956	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q957	8-729-119-78	TRANSISTOR	2SC2785-HFE			
		< RESISTOR >				
R901	1-202-725-00	SOLID	3.3M	10%	1/2W (US, Canadian)	
R960	1-249-396-11	CARBON	18	5%	1/6W	
R961	1-249-417-11	CARBON	1K	5%	1/4W	
R962	1-249-437-11	CARBON	47K	5%	1/4W	
R963	1-249-433-11	CARBON	22K	5%	1/4W	
R964	1-249-429-11	CARBON	10K	5%	1/4W	
R965	1-249-425-11	CARBON	4.7K	5%	1/4W	
R966	1-249-429-11	CARBON	10K	5%	1/4W	
R967	1-249-417-11	CARBON	1K	5%	1/4W	
R968	1-249-429-11	CARBON	10K	5%	1/4W	
R969	1-249-426-11	CARBON	5.6K	5%	1/4W	
R970	1-249-417-11	CARBON	1K	5%	1/4W	
R971	1-249-426-11	CARBON	5.6K	5%	1/4W	
		< RELAY >				
RY901	⚠1-515-617-11	RELAY (Australian, E)				
RY901	⚠1-515-701-11	RELAY (US, Canadian)				
		< TRANSFORMER >				
T902	⚠1-449-993-21	TRANSFORMER, POWER (US, Canadian)				
T902	⚠1-450-067-11	TRANSFORMER, POWER (Australian, E)				

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Ref. No.	Part No.	Description				Remarks
	* 1-638-285-11	HP BOARD				
		********				
		< JACK >				
J700	1-568-515-21	JACK (LARGE TYPE) (PHONES)				

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	* 1-638-286-11	HP JOINT BOARD				
		**********				
		< CONNECTOR >				
CN707	* 1-506-509-11	PIN, CONNECTOR 4P				

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	* A-4341-814-A	MAIN BOARD, COMPLETE (Australian)				
		**********				
	* A-4341-950-A	MAIN BOARD, COMPLETE (Canadian)				
		**********				
	* A-4341-713-A	MAIN BOARD, COMPLETE (E)				
		**********				
	* A-4341-708-A	MAIN BOARD, COMPLETE (US)				
		**********				
	* 1-683-270-11	MAIN BOARD				
	1-533-217-31	HOLDER, FUSE (US)				
	* 4-942-204-01	PLATE, GROUND				
		< CAPACITOR >				
C301	1-124-907-11	ELECT	10uF	20%	50V	
C302	1-162-215-31	CERAMIC	47PF	5%	50V	
C303	1-124-907-11	ELECT	10uF	20%	50V	
C351	1-124-907-11	ELECT	10uF	20%	50V	
C352	1-162-215-31	CERAMIC	47PF	5%	50V	
C353	1-124-907-11	ELECT	10uF	20%	50V	
C501	1-162-283-31	CERAMIC	120PF	10%	50V	
C502	1-124-907-11	ELECT	10uF	20%	50V	
C503	1-162-282-31	CERAMIC	100PF	10%	50V	
C504	1-124-925-11	ELECT	2.2uF	20%	100V	
C506	1-161-374-11	CERAMIC	0.0015uF	20%	50V	
C507	1-124-902-00	ELECT	0.47uF	20%	50V	
C508	1-126-233-11	ELECT	22uF	20%	50V	
C509	1-162-294-31	CERAMIC	0.001uF	10%	50V	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN

Ref. No.	Part No.	Description				Remarks
C510	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C551	1-162-283-31	CERAMIC	120PF	10%	50V	
C552	1-124-907-11	ELECT	10uF	20%	50V	
C553	1-162-282-31	CERAMIC	100PF	10%	50V	
C554	1-124-925-11	ELECT	2.2uF	20%	100V	
C555	1-130-480-00	MYLAR	0.0056uF	5%	50V	
C556	1-161-374-11	CERAMIC	0.0015uF	20%	50V	
C557	1-124-902-00	ELECT	0.47uF	20%	50V	
C558	1-126-233-11	ELECT	22uF	20%	50V	
C701	1-124-927-11	ELECT	4.7uF	20%	100V	
C702	1-162-286-31	CERAMIC	220PF	10%	50V	
C706	1-162-209-31	CERAMIC	27PF	5%	50V	
C707	1-161-959-00	CERAMIC	22PF	10%	500V	
C708	1-124-477-11	ELECT	47uF	20%	25V	
C709	1-161-959-00	CERAMIC	22PF	10%	500V	
C710	1-130-495-00	MYLAR	0.1uF	5%	50V	
C711	1-130-493-00	MYLAR	0.068uF	5%	50V	
			(Canadian, E, Australian)			
C712	1-130-489-00	MYLAR	0.033uF	5%	50V (US)	
C712	1-130-493-00	MYLAR	0.068uF	5%	50V	
			(Canadian, E, Australian)			
C713	1-130-487-00	MYLAR	0.022uF	5%	50V	
C714	1-124-477-11	ELECT	47uF	20%	25V	
C715	1-124-443-00	ELECT	100uF	20%	10V	
C716	1-124-907-11	ELECT	10uF	20%	50V	
C717	1-124-477-11	ELECT	47uF	20%	25V	
C751	1-124-927-11	ELECT	4.7uF	20%	100V	
C752	1-162-286-31	CERAMIC	220PF	10%	50V	
C756	1-162-209-31	CERAMIC	27PF	5%	50V	
C757	1-161-959-00	CERAMIC	22PF	10%	500V	
C758	1-124-477-11	ELECT	47uF	20%	25V	
C759	1-161-959-00	CERAMIC	22PF	10%	500V	
C760	1-130-495-00	MYLAR	0.1uF	5%	50V	
C761	1-130-493-00	MYLAR	0.068uF	5%	50V	
			(Canadian, E, Australian)			
C762	1-130-489-00	MYLAR	0.033uF	5%	50V (US)	
C762	1-130-493-00	MYLAR	0.068uF	5%	50V	
			(Canadian, E, Australian)			
C951	1-106-367-00	MYLAR	0.01uF	5%	200V	
C952	1-106-367-00	MYLAR	0.01uF	5%	200V	
C953	1-125-479-11	ELECT	10000uF	20%	63V	
			(US, Canadian)			
C953	1-126-358-11	ELECT	10000uF	20%	71V	
			(Australian, E)			
C954	1-126-358-11	ELECT	10000uF	20%	71V	
			(Australian, E)			
C954	1-125-479-11	ELECT	10000uF	20%	63V	
			(US, Canadian)			

Ref. No.	Part No.	Description				Remarks
C957	1-130-487-00	MYLAR	0.022uF	5%	50V	
C958	1-130-487-00	MYLAR	0.022uF	5%	50V	
C959	1-124-563-11	ELECT	2200uF	20%	25V	
C960	1-124-557-11	ELECT	1000uF	20%	25V	
C961	1-124-907-11	ELECT	10uF	20%	50V	
C962	1-124-907-11	ELECT	10uF	20%	50V	
C963	1-124-477-11	ELECT	47uF	20%	25V	
C964	1-124-477-11	ELECT	47uF	20%	25V	
C965	1-124-477-11	ELECT	47uF	20%	25V	
C975	1-124-910-11	ELECT	47uF	20%	50V	
					(Canadian)	
C976	1-124-910-11	ELECT	47uF	20%	50V	
					(Canadian)	
		< CONNECTOR >				
CN1	1-565-949-11	SOCKET, CONNECTOR 9P (SYSTEM CONTROL 3)				
CN3	* 1-566-858-11	SOCKET, CONNECTOR 11P				
					(SYSTEM CONTROL 2, 1)	
CN5	* 1-564-358-00	PIN, CONNECTOR 3P (Australian, E)				
CN301	* 1-568-826-11	SOCKET, CONNECTOR 7P				
CN302	* 1-564-779-11	PLUG, CONNECTOR (2.5MM) 6P (E)				
CN701	* 1-568-826-11	SOCKET, CONNECTOR 7P				
CN710	* 1-563-192-11	CONNECTOR (SOCKET) 9P				
CN711	* 1-563-192-11	CONNECTOR (SOCKET) 9P				
CN903	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P (E)				
		< DIODE >				
D115	8-719-987-63	DIODE	1N4148M			
D703	8-719-815-85	DIODE	1S1585			
D704	8-719-815-85	DIODE	1S1585			
D705	8-719-987-63	DIODE	1N4148M			
D706	8-719-987-63	DIODE	1N4148M (Canadian, E,			
					Australian)	
D707	8-719-815-85	DIODE	1S1585			
D753	8-719-815-85	DIODE	1S1585			
D754	8-719-815-85	DIODE	1S1585			
D951	8-719-302-38	DIODE	RBV-602-01			
D953	8-719-200-77	DIODE	10E2N			
D954	8-719-200-77	DIODE	10E2N			
D955	8-719-200-77	DIODE	10E2N			
D956	8-719-200-77	DIODE	10E2N			
D957	8-719-002-49	DIODE	HZS30-1L			
D968	8-719-001-54	DIODE	UZL-11H2 (Canadian)			
D968	8-719-001-25	DIODE	UZL-9H2 (US, Australian, E)			

Ref. No.	Part No.	Description	Remarks
		< IC >	
IC301	8-759-634-50	IC M5218AL	
IC501	8-759-634-50	IC M5218AL	
IC502	8-759-805-14	IC LC7822	
IC701	8-759-111-68	IC uPC1237HA	
IC951	8-759-231-53	IC M5F7805L	
IC952	8-759-604-33	IC M5F7812L	
IC953	8-759-604-51	IC M5F7912L	
		< IC LINK >	
ICP903	1-532-841-21	LINK IC (Australian, E)	
		< JACK >	
J501	1-580-826-11	JACK, PIN (PHONE CD VIDEO)	
		< COIL >	
L701	* 1-420-872-00	COIL, AIR CORE	
L751	* 1-420-872-00	COIL, AIR CORE	
		< TRANSISTOR >	
Q105	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q705	8-729-141-06	TRANSISTOR 2SA1142-QPE	
Q706	8-729-209-15	TRANSISTOR 2SD2012	
Q707	8-729-141-05	TRANSISTOR 2SC2682-QPE	
Q708	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q709	8-729-119-76	TRANSISTOR 2SA1175-HFE (Canadian, E, Australian)	
Q709	8-729-620-02	TRANSISTOR 2SA1115-EF (US)	
Q710	8-729-141-46	TRANSISTOR 2SC4431-LK	
Q711	8-729-141-37	TRANSISTOR 2SA1684-LK	
Q712	8-729-320-83	TRANSISTOR 2SC3855-OY	
Q713	8-729-320-86	TRANSISTOR 2SA1491-OY	
Q714	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q715	8-729-900-36	TRANSISTOR DTC124ES	
Q755	8-729-141-06	TRANSISTOR 2SA1142-QPE	
Q756	8-729-209-15	TRANSISTOR 2SD2012	
Q757	8-729-141-05	TRANSISTOR 2SC2682-QPE	
Q758	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q759	8-729-119-76	TRANSISTOR 2SA1175-HFE (Canadian, E, Australian)	
Q759	8-729-620-02	TRANSISTOR 2SA1115-EF (US)	
Q760	8-729-141-46	TRANSISTOR 2SC4431-LK	
Q761	8-729-141-37	TRANSISTOR 2SA1684-LK	
Q762	8-729-320-83	TRANSISTOR 2SC3855-OY	
Q763	8-729-320-86	TRANSISTOR 2SA1491-OY	
Q764	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q951	8-729-141-03	TRANSISTOR 2SA733-QP	
Q958	8-729-209-15	TRANSISTOR 2SD2012 (Canadian)	
		< RESISTOR >	
R139	1-249-417-11	CARBON 1K 5% 1/4W	
R140	1-249-393-11	CARBON 10 5% 1/4W	
R141	⚠1-249-478-11	CARBON 2.2 5% 1/2W F (Australian, E)	
R301	1-247-887-00	CARBON 220K 5% 1/4W	
R302	1-247-887-00	CARBON 220K 5% 1/4W	
R346	1-247-887-00	CARBON 220K 5% 1/4W	
R351	1-247-887-00	CARBON 220K 5% 1/4W	
R352	1-247-887-00	CARBON 220K 5% 1/4W	
R396	1-247-887-00	CARBON 220K 5% 1/4W	
R501	1-249-411-11	CARBON 330 5% 1/4W	
R502	1-249-417-11	CARBON 1K 5% 1/4W	
R503	1-249-429-11	CARBON 10K 5% 1/4W	
R504	1-249-417-11	CARBON 1K 5% 1/4W	
R505	1-249-417-11	CARBON 1K 5% 1/4W	
R506	1-249-417-11	CARBON 1K 5% 1/4W	
R507	1-249-437-11	CARBON 47K 5% 1/4W	
R508	1-249-416-11	CARBON 820 5% 1/4W	
R509	1-247-897-11	CARBON 560K 5% 1/4W	
R510	1-249-437-11	CARBON 47K 5% 1/4W	
R511	1-249-441-11	CARBON 100K 5% 1/4W	
R512	1-249-409-11	CARBON 220 5% 1/4W	
R513	1-249-425-11	CARBON 4.7K 5% 1/4W	
R551	1-249-411-11	CARBON 330 5% 1/4W	
R552	1-249-417-11	CARBON 1K 5% 1/4W	
R553	1-249-429-11	CARBON 10K 5% 1/4W	
R554	1-249-417-11	CARBON 1K 5% 1/4W	
R555	1-249-417-11	CARBON 1K 5% 1/4W	
R556	1-249-417-11	CARBON 1K 5% 1/4W	
R557	1-249-437-11	CARBON 47K 5% 1/4W	
R558	1-249-416-11	CARBON 820 5% 1/4W	
R559	1-247-897-11	CARBON 560K 5% 1/4W	
R560	1-249-437-11	CARBON 47K 5% 1/4W	
R561	1-249-441-11	CARBON 100K 5% 1/4W	
R562	1-249-409-11	CARBON 220 5% 1/4W	
R701	1-249-417-11	CARBON 1K 5% 1/4W	
R712	1-249-435-11	CARBON 33K 5% 1/4W	
R713	⚠1-247-692-11	CARBON 22 5% 1/4W	
R714	1-249-417-11	CARBON 1K 5% 1/4W	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN RX

Ref. No.	Part No.	Description				Remarks
R715	1-249-412-11	CARBON	390	5%	1/4W	
R716	⚠1-247-692-11	CARBON	22	5%	1/4W	
R717	⚠1-247-688-11	CARBON	10	5%	1/4W	
R718	⚠1-247-688-11	CARBON	10	5%	1/4W	
R719	⚠1-247-719-11	CARBON	3.3K	5%	1/4W	
R720	⚠1-247-713-11	CARBON	1K	5%	1/4W	
R721	⚠1-247-713-11	CARBON	1K	5%	1/4W	
R722	⚠1-247-717-11	CARBON	2.2K	5%	1/4W	
R723	⚠1-247-745-11	CARBON	330	5%	1/2W	
R724	⚠1-247-688-11	CARBON	10	5%	1/4W	
R725	⚠1-247-688-11	CARBON	10	5%	1/4W	
R726	⚠1-214-789-00	RES, METAL PLATE 0.1				
R727	⚠1-214-789-00	RES, METAL PLATE 0.1				
R728	1-249-393-11	CARBON	10	5%	1/4W	(US, Canadian, E)
R728	1-247-688-11	CARBON	10	5%	1/4W	(Australian)
R729	1-247-688-11	CARBON	10	5%	1/4W	(Australian)
R729	1-249-393-11	CARBON	10	5%	1/4W	(US, Canadian, E)
R730	1-249-419-11	CARBON	1.5K	5%	1/4W	
R731	1-249-431-11	CARBON	15K	5%	1/4W	
R732	1-249-437-11	CARBON	47K	5%	1/4W	
R734	1-249-393-11	CARBON	10	5%	1/4W	(US, Canadian, E)
R734	1-247-688-11	CARBON	10	5%	1/4W	(Australian)
R735	1-247-688-11	CARBON	10	5%	1/4W	(Australian)
R735	1-249-393-11	CARBON	10	5%	1/4W	(US, Canadian, E)
R736	1-249-438-11	CARBON	56K	5%	1/4W	
R737	1-249-433-11	CARBON	22K	5%	1/4W	
R740	1-249-427-11	CARBON	6.8K	5%	1/4W	
R741	1-249-441-11	CARBON	100K	5%	1/4W	
R751	1-249-417-11	CARBON	1K	5%	1/4W	
R762	1-249-435-11	CARBON	33K	5%	1/4W	
R763	⚠1-247-692-11	CARBON	22	5%	1/4W	
R764	1-249-417-11	CARBON	1K	5%	1/4W	
R765	1-249-412-11	CARBON	390	5%	1/4W	
R766	⚠1-247-692-11	CARBON	22	5%	1/4W	
R767	⚠1-247-688-11	CARBON	10	5%	1/4W	
R768	⚠1-247-688-11	CARBON	10	5%	1/4W	
R769	⚠1-247-719-11	CARBON	3.3K	5%	1/4W	
R770	⚠1-247-713-11	CARBON	1K	5%	1/4W	
R771	⚠1-247-713-11	CARBON	1K	5%	1/4W	
R772	⚠1-247-717-11	CARBON	2.2K	5%	1/4W	
R773	⚠1-247-745-11	CARBON	330	5%	1/2W	
R774	⚠1-247-688-11	CARBON	10	5%	1/4W	
R775	⚠1-247-688-11	CARBON	10	5%	1/4W	
R776	⚠1-214-789-00	RES, METAL PLATE 0.1				
R777	⚠1-214-789-00	RES, METAL PLATE 0.1				
R778	1-249-393-11	CARBON	10	5%	1/4W	(US, Canadian, E)
R778	1-247-688-11	CARBON	10	5%	1/4W	(Australian)
R779	1-247-688-11	CARBON	10	5%	1/4W	(Australian)
R779	1-249-393-11	CARBON	10	5%	1/4W	(US, Canadian, E)
R780	1-249-419-11	CARBON	1.5K	5%	1/4W	
R781	1-249-431-11	CARBON	15K	5%	1/4W	
R782	1-249-438-11	CARBON	56K	5%	1/4W	
R784	1-249-393-11	CARBON	10	5%	1/4W	(US, Canadian, E)
R784	1-247-688-11	CARBON	10	5%	1/4W	(Australian)
R789	1-247-688-11	CARBON	10	5%	1/4W	(Australian)
R789	1-249-393-11	CARBON	10	5%	1/4W	(US, Canadian, E)
R793	1-249-429-11	CARBON	10K	5%	1/4W	
R954	⚠1-216-481-11	METAL OXIDE	1.2K	5%	3W	F
R955	⚠1-247-704-11	CARBON	220	5%	1/4W	
R956	1-249-426-11	CARBON	5.6K	5%	1/4W	
R957	1-249-385-11	CARBON	2.2	5%	1/6W	
R958	1-249-385-11	CARBON	2.2	5%	1/6W	
R959	1-249-385-11	CARBON	2.2	5%	1/6W	
R972	1-249-425-11	CARBON	4.7K	5%	1/4W	(Canadian)

< RELAY >

RY701	1-515-741-11	RELAY	

< TEST PIN >

TP701	* 1-560-531-00	PIN, CONNECTOR 5P	

****

* 1-638-277-11 RX BOARD

****

< CAPACITOR >

C107	1-162-294-31	CERAMIC	0.001uF	10%	50V	

Note:
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Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

RX SP SW SP TM VOL VOL JOINT

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN106	* 1-565-295-11	PLUG, CONNECTOR 4P	
		< IC >	
IC102	8-749-920-83	IC GP1U52XB	
		< RESISTOR >	
R137	1-249-429-11	CARBON 10K 5% 1/4W	
R138	1-249-429-11	CARBON 10K 5% 1/4W	
		< SWITCH >	
S117	1-554-303-21	SWITCH, TACTILE (SYSTEM POWER)	
**********			
	* 1-638-284-11	SP SW BOARD	
		**********	
		< CONNECTOR >	
CN706	* 1-565-480-11	CONNECTOR, BOARD TO BOARD 4P	
CN708	* 1-506-786-11	PLUG, CONNECTOR (2.5MM) 12P	
		< RESISTOR >	
R733	⚠1-216-431-11	METAL OXIDE 560 5% 1W F	
R783	⚠1-216-431-11	METAL OXIDE 560 5% 1W F	
		< SWITCH >	
S701	1-572-685-11	SWITCH, ROTARY SLIDE (SPEAKERS)	
**********			
	* 1-638-287-11	SP TM BOARD	
		**********	
		< CONNECTOR >	
CN705	* 1-564-778-11	PLUG, CONNECTOR (2.5MM) 4P	
TM701	1-537-341-11	TERMINAL BOARD (8P SP) (SPEAKER A, B)	
**********			

Ref. No.	Part No.	Description	Remarks
	* 1-638-501-11	VOL BOARD	
		*********	
		< CONNECTOR >	
CN204	* 1-568-826-11	SOCKET, CONNECTOR 7P	
		< VARIABLE RESISTOR >	
RV407	1-241-405-11	RES, VAR, CARBON 100K/100K (MASTER VOLUME)	
**********			
	* 1-638-502-11	VOL JOINT BOARD	
		**********	
		< CAPACITOR >	
C418	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C419	1-124-925-11	ELECT 2.2uF 20% 100V	
C420	1-124-925-11	ELECT 2.2uF 20% 100V	
C421	1-162-306-11	CERAMIC 0.01uF 20% 16V	
		< IC >	
IC402	8-759-820-62	IC LB1639	
		< RESISTOR >	
R416	1-249-409-11	CARBON 220 5% 1/4W	
R417	1-249-425-11	CARBON 4.7K 5% 1/4W	
R418	1-249-425-11	CARBON 4.7K 5% 1/4W	
**********			
		MISCELLANEOUS	
		**********	
8	1-590-485-11	WIRE, FLAT TYPE (7 CORE)	
14	1-590-486-11	WIRE, FLAT TYPE (7 CORE)	
15	1-590-488-11	WIRE, FLAT TYPE (11 CORE)	
16	1-590-538-11	WIRE, FLAT TYPE (7 CORE)	
64	1-535-530-11	PLUG, JUMPER (E)	
65	⚠1-569-007-11	ADAPTER, CONVERSION 2P (E)	
CNP901	⚠1-551-188-XX	CORD, POWER (E)	
CNP901	⚠1-551-478-00	CORD, POWER (US, Canadian)	
CNP901	⚠1-559-912-11	CORD, POWER (Australian)	
T901	⚠1-450-368-11	TRANSFORMER, POWER (US, Canadian)	
T901	⚠1-450-369-11	TRANSFORMER, POWER (E, Australian)	
VS-1	⚠* 1-571-515-11	SWITCH, POWER VOLTAGE SELECTION (E)	

Note:
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Replace only with part number specified.

Note:
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Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
**********			
		ACCESSORY & PACKING MATERIAL	
		**********	
*	4-943-620-01	CUSHION	
**********			

HARDWARE LIST

****

# 1	7-682-548-04	SCREW +BVTT 3X8 (S)	
# 2	7-682-548-09	SCREW +B 3X8	
# 3	7-682-561-04	SCREW +BVTT 4X8 (S)	
# 4	7-682-949-01	SCREW +PSW 3X10	
# 5	7-621-849-00	SCREW, TAPPING	
# 6	7-685-646-79	SCREW +BTP 3X8 TYPE2 N-S	

9-956-348-12
(Including 9-956-348-91)

Sony Corporation
Audio Group

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TC-W311

SERVICE MANUAL

US Model
Canadian Model
E Model
Australian Model

TC-W311 is the cassette deck of the SEN-311 system.

- TC-W311 is a model designed based on the TC-W301. The mechanical parts of the TC-W311 differ from those of the TC-W301.

- For additional information not contained in this manual, refer to the TC-W301 Service Manual.

SPECIFICATIONS

Recording system	4-track 2-channel stereo
Frequency response	(DOLBY NR OFF)
	With TYPE IV cassette (Sony METAL-ES)
	30 – 15,000 Hz (±3 dB)
	30 – 13,000 Hz (0 VU recording)
	With TYPE II cassette (Sony UCX-S)
	30 – 13,000 Hz (±3 dB)
	With TYPE I cassette (Sony HF-S)
	30 – 13,000 Hz (±3 dB)
Wow and flutter	0.12% WRMS (NAB)
Dimensions	Approx. 430 x 120 x 280 mm (w/h/d)
	(17 x 4 3/4 x 11 inches)
Weight	Approx. 3.5 kg (6 lb. 14 oz.) net

Design and specifications subject to change without notice.

STEREO CASSETTE DECK

SONY®

EXPLODED VIEWS

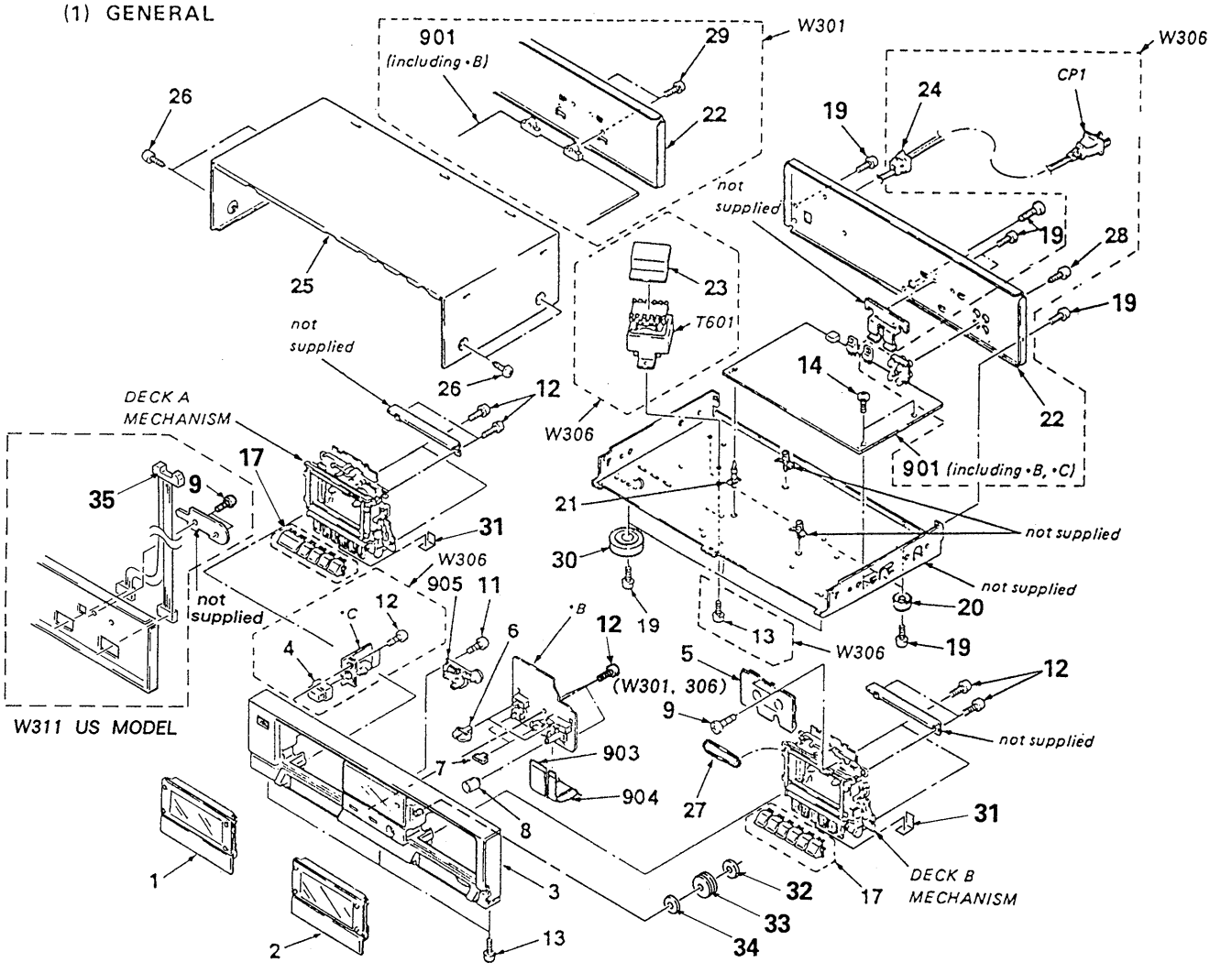
NOTE :

- – XX, – X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

Refer to page 12 of the TC-W301 Service Manual.

(1) GENERAL



GENERAL PARTS LIST (Parts comparison table of TC-W301 and TC-W311)

Page	Ref. No.	Part No.		Description
		TC-W301	TC-W311	
	1	X-3340-190-1	← Identical	LID (A) ASSY, CASSETTE
	2	X-3340-189-1	← Identical	LID (B) ASSY, CASSETTE
	3	X-3340-191-1	X-3362-786-1	PANEL ASSY, FRONT
	5	X-3358-214-1	← Identical	PLATE ASSY, ORNAMENTAL
	6	3-346-379-01	← Identical	KNOB (SLIDE)
	7	3-346-381-01	← Identical	BUTTON
	8	3-349-039-01	← Identical	KNOB (VOL)
	9	7-685-133-19	← Identical	SCREW, +BTP 2.6X6 TYPE2 N-S
	11	4-928-635-01	← Identical	SCREW, +BV (2.6X8) TAPPING
	12	4-928-635-21	← Identical	SCREW, +BV (2.6X10) TAPPING
	14	4-886-821-11	Not used	SCREW, S TIGHT, +PTTWH 3X6
	17	4-943-424-01	← Identical	BUTTON (BLOCK B)
	18	4-943-423-01	← Identical	BUTTON (BLOCK A)
	19	7-682-548-09	← Identical	SCREW, +BVTT 3X8 (S)
	20	X-3340-138-1	← Identical	FOOT ASSY (US, Canadian)
		X-3340-173-1	← Identical	FOOT ASSY (E, AUS)
12				
	21	3-346-265-11	← Identical	HOLDER, PC BOARD
	22	*3-349-023-21	*3-349-023-51	PANEL, BACK (US)
		Not used	*3-349-023-61	PANEL, BACK (CND)
		Not used	*3-349-023-71	PANEL, BACK (E, AUS)
	25	*4-943-088-31	← Identical	CASE
	26	3-704-366-01	← Identical	SCREW (CASE) (M3X8)
	27	3-499-042-XX	← Identical	BELT, COUNTER
	29	7-685-646-79	Not used	SCREW, +BVTP 3X8 TYPE 2
	30	X-4904-496-1	X-4941-228-1	FOOT ASSY
	31	Not used	3-359-928-01	FELT (CONDUCTIVE FELT)
	32	3-558-708-11	← Identical	WASHER, STOPPER
	33	3-549-452-00	← Identical	PULLEY, SHUT-OFF
	34	3-701-437-11	← Identical	WASHER
	35	Not used	1-590-537-11	CORD WITH CONNECTOR (US)
	901	*A-2006-071-A	*A-2006-468-A	MOUNTED PCB, AUIDIO (US, E, AUS)
		*A-2006-138-A	*A-2006-528-A	MOUNTED PCB, AUIDIO (Canadian)
	903	1-574-724-11	1-590-487-11	WIRE, FLAT TYPE (17 CORE)
	904	1-574-723-11	1-590-538-11	WIRE, FLAT TYPE (7 CORE)
	905	1-548-596-61	← Identical	COUNTER, TAPE (MIDDLE TYPE)

・AUS:Australian

ELECTRICAL PARTS LIST

Parts comparison table of TC-W301 and TC-W311

Page	TC-W301	TC-W311
16	C341 1-126-301-11 ELECT 1MF 20% 50V C501 1-126-233-11 ELECT 4.7MF 20% 50V	C341 1-126-233-11 ELECT 22MF 20% 50V C501 1-126-233-11 ELECT 22MF 20% 50V
	CN601 *1-566-856-11 SOCKET, CONNETOR 5P (SYSTEM CONTROL 1)	CN601 *1-566-856-41 SOCKET, CONNECTOR 5P (SYSTEM CONTROL 1)(BLU)
	CN604 1-568-439-11 SOCKET, CONNECTOR 7P CN605 1-568-440-11 SOCKET, CONNECTOR 17P CN608 1-568-438-11 SOCEKT, CONNECTOR 17P CN609 1-568-437-11 SOCKET, CONNECTOR 7P	CN604 1-568-826-11 SOCKET, CONNECTOR 7P CN605 1-568-836-11 SOCKET, CONNECTOR 17P CN608 1-568-860-11 SOCKET, CONNECTOR 17P CN609 1-568-850-11 SOCKET, CONNECTOR 7P
17	D401 8-719-107-94 DIODE 1SS202-1 D402 8-719-107-94 DIODE 1SS202-1 D501 8-719-107-94 DIODE 1SS202-1 D504 8-719-107-94 DIODE 1SS202-1 D505 8-719-107-94 DIODE 1SS202-1	D401 8-719-987-63 DIODE 1N4148M D402 8-719-987-63 DIODE 1N4148M D501 8-719-987-63 DIODE 1N4148M D504 8-719-987-63 DIODE 1N4148M D505 8-719-987-63 DIODE 1N4148M
	D506 8-719-107-94 DIODE 1SS202-1 D507 8-719-107-94 DIODE 1SS202-1 D510 8-719-107-94 DIODE 1SS202-1 D512 8-719-107-94 DIODE 1SS202-1 D516 8-719-107-94 DIODE 1SS202-1	D506 8-719-987-63 DIODE 1N4148M D507 8-719-987-63 DIODE 1N4148M D510 8-719-987-63 DIODE 1N4148M D512 8-719-987-63 DIODE 1N4148M D516 8-719-987-63 DIODE 1N4148M
	D518 8-719-107-94 DIODE 1SS202-1	D518 8-719-987-63 DIODE 1N4148M
19	S302 1-571-627-21 SWITCH, SLIDE (DECK A TAPE SELECT)	S302 1-570-974-11 SWITCH, SLIDE (DECK A TAPE SELECT)

9-956-406-11

Sony Corporation
Audio Group

English
91D1641-1
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ST-JX311/JX411

SERVICE MANUAL

US Model
Canadian Model
E Model
Australian Model

Photo: ST-JX411

ST-JX311: This set is the tuner section in SEN-311.

SPECIFICATIONS

FM tuner section

Tuning range	87.5 – 108 MHz
Antenna terminals	75 ohms unbalanced 300 ohms balanced
Intermediate frequency	10.7 MHz
Sensitivity (at 50 dB quieting)	22.1 dBf, 7 μV (mono), 42.1 dBf, 70 μV (stereo)
Usable sensitivity	19.5 dBf, 5 μV (IHF)
Signal-to-noise ratio (at 75 kHz deviation)	80 dB (mono), 75 dB (stereo)
Harmonic distortion	0.3% (mono), 0.5% (stereo) at 1 kHz
Separation	40 dB at 1 kHz
Frequency response	30 Hz – 15 kHz $^{+0.5}_{-2.0}$ dB
Selectivity	55 dB at 400 kHz
AM suppression ratio	54 dB
Image response ratio	50 dB
IF response ratio	90 dB
Spurious response ratio	70 dB
Automatic tuning threshold	17.8 μV (30 dBf)
Output	775 mV, 4.7 kohms (at 75 kHz deviation)

AM tuner section

Tuning range	US, Canadian model: 530—1,710 kHz (10 kHz) 531—1,710 kHz (9 kHz) E, Australian model: 531—1,602 kHz
Antenna	AM loop antenna, External antenna terminal
Intermediate frequency	450 kHz
Usable sensitivity	AM loop antenna: 500 μV/m (999 kHz or 1,000 kHz)
Signal-to-noise ratio	54 dB
Harmonic distortion	0.5%
Selectivity	35 dB (9 kHz) 38 dB (10 kHz)

General

Power requirements	US, Canadian model: 120 V AC, 60 Hz E, Australian model: 240 V AC, 50 Hz
Power consumption	8W (ST-JX411)
AC outlet (U.S.A. model only)	1 unswitched, 120W/1 A max.
Dimensions	Approx. 430 x 80 x 295 mm (w/h/d) (17 x $3^1/_4$ x $11^5/_8$ inches)
Weight	ST-JX311: Approx. 2.1 kg (4 lb 11 oz) ST-JX411: Approx. 2.6 kg (5 lb 12 oz)
Accessories supplied	
ST-JX311:	Flat cord with 11-5-5-pin connectors (1), connected to TC-W311. Flat cord with 9-9-pin connectors (1) Remote commander RM-S102 (1) Sony batteries SUM 3 (NS) (2)
ST-JX411:	Remote control cord (1) Audio connecting cord (1) AM loop antenna (1) FM loop antenna (1)

Design and specifications subject to change without notice.

FM STEREO/FM-AM TUNER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

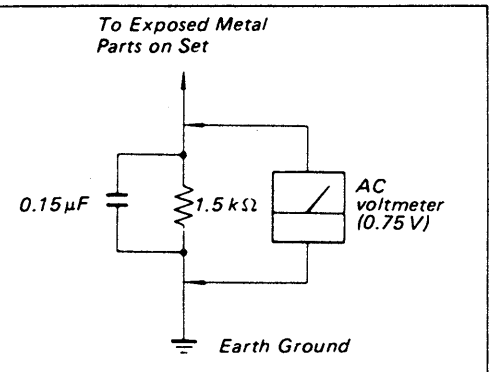

Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

TABLE OF CONTENTS

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To change the AM tuning interval

The AM tuning interval is preset at the factory to 10 kHz to match the frequency allocation system of your country. To change the interval to 9 kHz, proceed as follows.

1 Depress the POWER switch to turn on the unit.
2 Set the BAND FM/AM selector to AM.
3 Press the POWER switch to turn off the unit.
4 Hold the TUNING knob in the "+" position, and depress the POWER switch to turn on the unit. To reset the interval to 10 kHz, follow the same procedure.

Note

When the interval is changed, all preset stations which you have memorized using the numeric buttons will be erased from the memory. After changing the interval, be sure to preset the stations again.

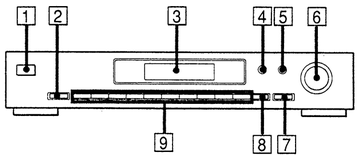
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

1-1. LOCATION OF CONTROLS



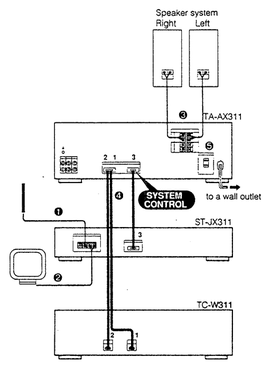
1 POWER switch (ST-JX411 only)
2 SHIFT button
3 Display window
4 MEMORY SCAN button
5 AUTO TUNING button
6 TUNING control
7 BAND FM/AM selector
8 MEMORY button
9 Numeric buttons

1-2. CONNECTION

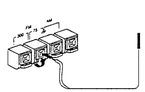
- Connect the AC power cord last. Make sure power is off.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for the left channel (L).
- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- Keep speaker cords, connecting cords and power cords away from the AM loop antenna and the tuner's antenna lead-in to avoid possible noise pickup.

CAUTION
Do not put anything like another unit to obstruct the ventilation holes on the top of the amplifier.
The level surface installation is required for essential air ventilation to prevent internal heat built up in the amplifier.

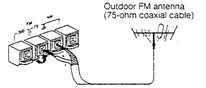
ST-JX311 Model



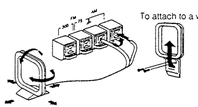
❶ FM wire antenna (supplied)



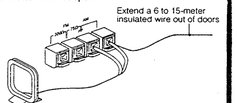
For better FM reception



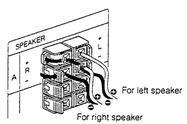
❷ AM loop antenna (supplied)



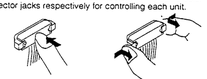
For better AM reception



❸ Speaker cords
You can connect two pairs of speaker systems: system A and system B.
They can be selected individually or simultaneously with the selector on the front panel.

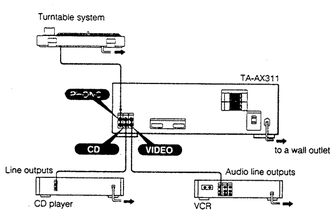


❹ Flat remote control cord (supplied)
Connect the blue and black connectors to the same color connector jacks respectively for controlling each unit.



❺ AC OUTLET
Use this to power an audio component whose power consumption is less than the wattage indicated on the AC OUTLET.
This outlet is controlled by the power switch on the amplifier.

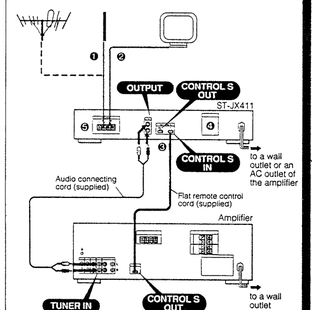
Adding Other Components to Your System



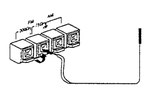
CAUTION
Do not connect any electical home appliances such as an iron, fan, TV or other high wattage equipment to the AC OUTLET.

Note
The supplied flat cords for tape deck are already connected to the TC-W311.

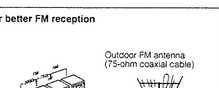
ST-JX411 Model



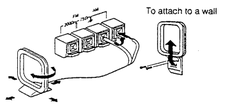
❶ FM wire antenna (supplied)



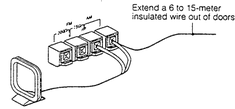
For better FM reception



❷ AM loop antenna (supplied)



For better AM reception



❸ Flat remote control cord (supplied)
IN: Connect to the CONTROL S OUT connector of the Sony amplifier for whole audio system remote control.
OUT: Connect to the CONTROL S IN connector of other Sony equipment with the 4-pin flat remote control cord for whole audio system remote control.

❹ AC OUTLET (U.S.A. model only)
Use this to power an audio component whose power consumption is less than the wattage indicated on the AC OUTLET.
This outlet is controlled by the power switch on the amplifier.

CAUTION
Do not connect any electical home appliances such as an iron, fan, TV or other high wattage equipment to the AC OUTLET.

❺ Antenna Ground
To prevent hum, connect the ground wire to ANTENNA ground terminal (⏚). When an outdoor antenna is installed, be sure to connect the ground wire for lightning protection.

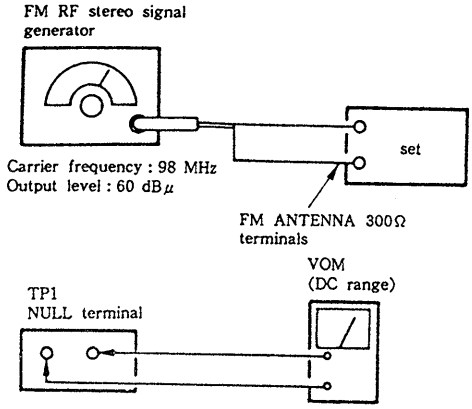
Note to CATV system indstaller
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

SECTION 2
ELECTRICAL ADJUSTMENTS

FM SECTION

• FM Discriminator Alignment (NULL check)

Setting :



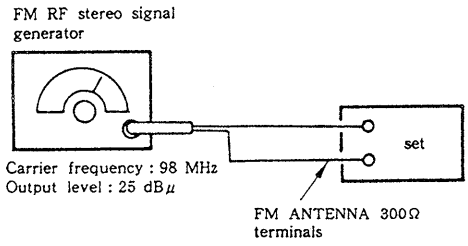
Procedure :

1. Tune the set to 98 MHz.
2. Adjust T21 for 0 V reading on the VOM.

Note : FM TUNING LEVEL adjustment should be macle after FM discriminator alignment.

• FM TUNING LEVEL Adjustment

Setting :

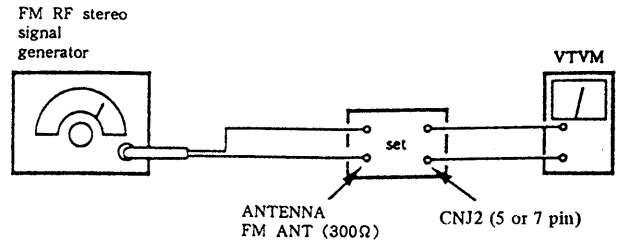


Procedure :

1. Tune the set to 98 MHz.
2. Adjust RV24 so that the TUNED LED goes on.

• FM Stereo Separation Adjustment

Setting :



Carrier frequency : 98 MHz
Output level : 60 dBμ

Procedure :

Tune the set to 98 MHz.

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	(A)
R-CH	L-CH	(B) Adjust RV21 for minimum reading.
R-CH	R-CH	(C)
L-CH	R-CH	(D) Adjust RV21 for minimum reading.

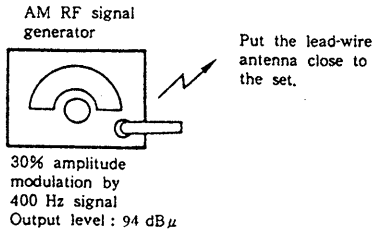
L-CH Stereo separation : (A) − (B)
R-CH Stereo separation : (C) − (D)

The separations of both channels should be equal.

AM SECTION

• AM Tuned Indication Lighting Level Adjustment

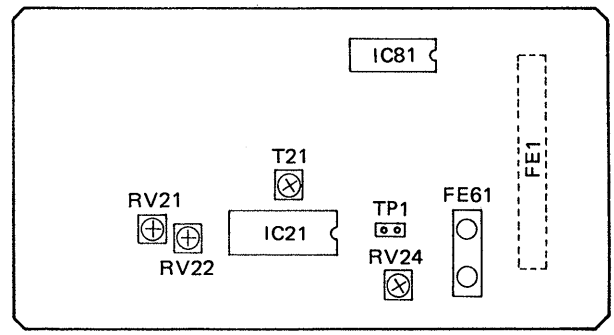
Setting :


AM RF signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400 Hz signal
Output level : 94 dBμ

Procedure :

1. Tune the set to 1,050 kHz (US, CANADIAN), 999 kHz (E, AUS).
2. Adjust RV22 so that the TUNED LED goes on.

—TUNER BOARD— (Component side)



SECTION 3
DIAGRAMS

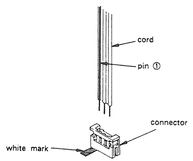
3-1. PRINTED WIRING BOARDS

Note:

- ○—— : parts extracted from the component side.
- ⊡ indicates side identified with part number.
- ▒▒▒ : Pattern on the side which is seen.

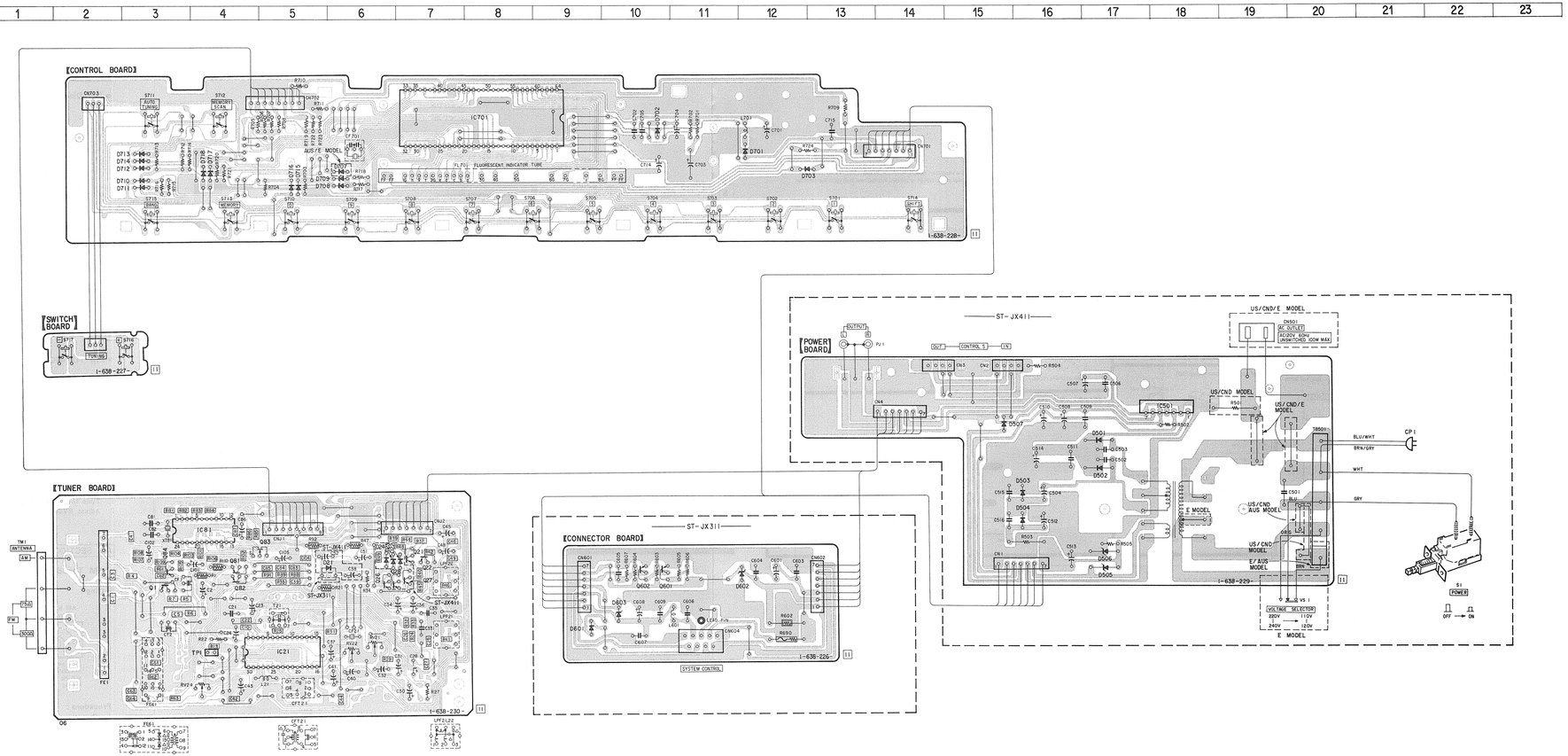
[Note on Inserting the Cord to the Connector on Tuner Board]

- Insert the cord to the connector fitting Pin ① of the cord in accordance with the white mark on the board at the connector as shown in the figure.



- **Semiconductor Location**

Ref.No.	Location	Ref.No.	Location
D21	H-5	D714	C-3
D22	H-6	D715	C-5
D23	H-6	D716	C-5
D24	H-6	D717	B-4
D501	G-17	D718	B-4
D502	G-17		
D503	G-16	IC21	J-5
D504	H-16	IC81	H-4
D505	I-17	IC501	F-18
D506	H-17	IC701	B-8
D507	F-16		
D601	I-9	Q1	I-3
D602	I-12	Q21	H-7
D603	I-10	Q22	H-7
D701	B-12	Q26	I-6
D702	B-10	Q27	I-7
D703	C-13	Q28	H-6
D707	C-6	Q81	H-4
D708	C-5	Q82	I-4
D709	C-5	Q83	H-5
D710	C-3	Q84	H-3
D711	C-3	Q601	I-10
D712	C-3	Q602	I-10
D713	B-3		



3-2. SCHEMATIC DIAGRAM —Tuner Section—

【TUNER BOARD】

TM1 ANTENNA
FM 300Ω 75Ω
AM

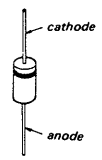
FE1
Q1 2SC2669OY FM IF AMP
IC21 AM RF/OSC/MIX/IF BUFFER FM IF/DET
IC21 LA1851N
IC81 PLL
IC81 LC7218
XT81 7.2MHZ
FE61
T21
TP1
NULL
STEREO SEPARATION
FM TUNED
AM TUNED
B+
Q21, 22 BUFFER
Q27, 28 SWITCHING
Q81, 82 FM B+ SWITCHING
Q81 2SA1348
Q82 2SC3402
Q83 2SK246 GR3
Q84 2SC3113A
Q21 2SC2603
Q22 2SC2603
Q24 2SC3402 MUTING
Q26 2SC2603
Q27 2SC2603
Q28 2SC2603
D21 1N4118M
D22 1N4148M
D24 1N4148M
D23 1N4148M
LPF22
LPF21
ST-JX411
ST-JX311

*	ST-JX411		ST-JX311	
	U/CA	AU/E	U/CA	AU/E
R22	8.2K	22K	8.2K	22K
C33, 35	8200P	6800P	8200P	6800P
R34	4.7K	4.7K	47K	47K
R1	220	220	180	180

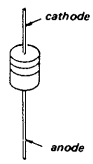
CNJ1: CE, DI, CL, DO (PLL), GND, TUNED, STEREO, MUTING → TO CONTROL BOARD CN702
CNJ2: GND, 5V, 13V, MUTING, L CH, GND, R CH → TO CONNECTOR BOARD CN602 (ST-JX311); TO POWER BOARD CN4 (ST-JX411)

3-3. SEMICONDUCTOR LEAD LAYOUTS

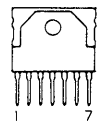
EQA02-06C
1N4148M
10E2N



HZS6A3L
RD30ESB3

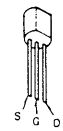


LA5667

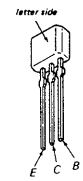


DTC114ES
2SC2603-EF
2SC3113-AB
2SC2669-OY

2SK246GR3



2SC2785-HFE



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.

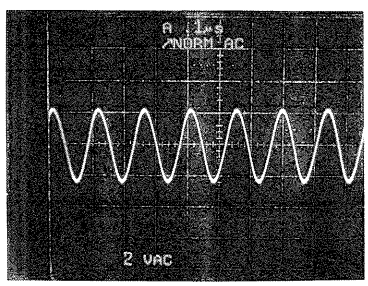
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ : B+ line.
- B− : B− line.
- : adjustment for repair.

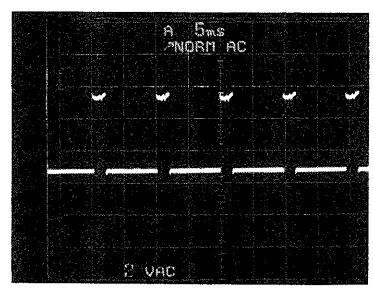
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
- Voltages are taken with a VOM. (Input impedance 10MΩ) Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM

3-4. WAVEFORMS

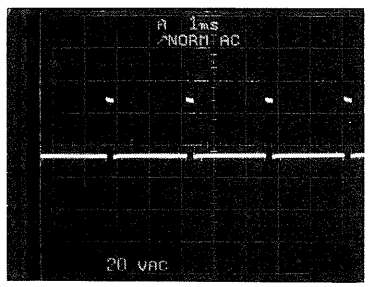
①



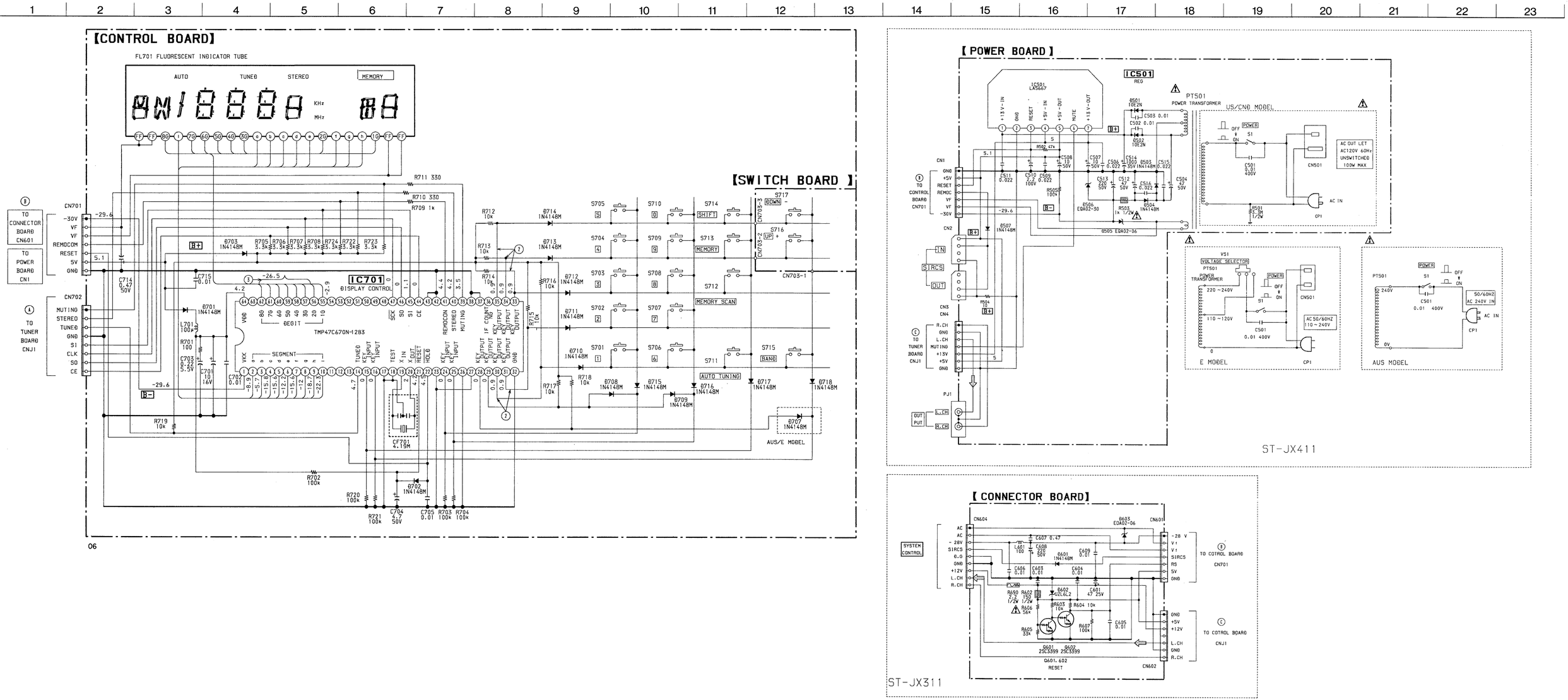
②



③



3-5. SCHEMATIC DIAGRAM —Control and Power Section— ● Refer to page 13 for note.



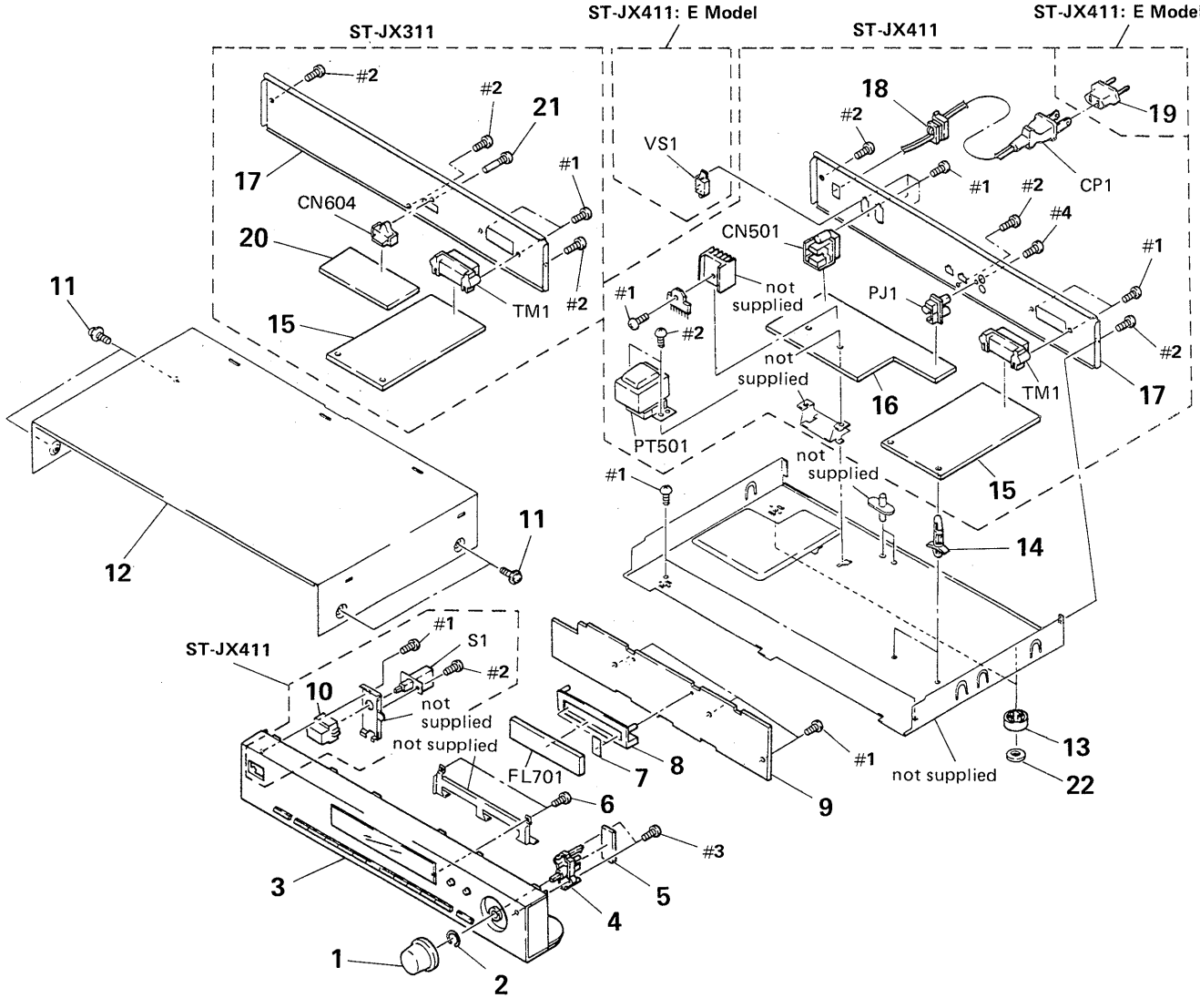
SECTION 4
EXPLODED VIEW

NOTE:

- –XX, –X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

- Abbreviation
  AUS: Australian



Ref. No.	Part No.	Description	Remark
1	4-943-466-01	KNOB (TUNING)	
2	4-946-017-01	SPRING, RING	
3	A-4323-885-A	PANEL ASSY, FRONT (JX311:US, Canadian)	
3	A-4323-886-A	PANEL ASSY, FRONT (JX311:E, AUS)	
3	A-4323-888-A	PANEL ASSY, FRONT (JX411:US)	
3	A-4323-889-A	PANEL ASSY, FRONT (JX411:E, AUS)	
3	A-4325-040-A	PANEL ASSY, FRONT (JX411:Canadian)	
4	X-4905-269-1	SHAFT ASSY, TUNING	
6	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
9	A-4341-787-A	CONTROL BOARD, COMPLETE (JX411:US)	
9	A-4341-788-A	CONTROL BOARD, COMPLETE (JX411:Canadian)	
9	A-4341-789-A	CONTROL BOARD, COMPLETE (JX411:E)	
9	* A-4341-790-A	CONTROL BOARD, COMPLETE (JX411:AUS)	
10	4-917-460-41	KNOB, POWER (JX411)	
11	3-704-366-01	SCREW (CASE) (M3X8)	
12	4-923-457-01	CASE	
13	3-318-688-51	FOOT (F58175S) (JX411:Canadian)	
13	X-4941-228-1	FOOT ASSY (JX411:US, E, AUS)	
14	* 3-346-265-11	HOLDER, PC BOARD	
15	* A-4341-783-A	TUNER BOARD, COMPLETE (JX311:US, Canadian)	
15	* A-4341-793-A	TUNER BOARD, COMPLETE (JX311:E, AUS)	
15	* A-4341-794-A	TUNER BOARD, COMPLETE (JX411:US, Canadian)	
15	* A-4341-795-A	TUNER BOARD, COMPLETE (JX411:E, AUS)	
16	* 1-638-229-11	POWER BOARD (JX411)	
17	* 4-943-471-01	PANEL, BACK (JX411:US, Canadian)	
17	* 4-943-471-11	PANEL, BACK (JX411:E)	
17	* 4-943-471-21	PANEL, BACK (JX411:AUS)	
17	* 4-943-472-01	PANEL, BACK (JX311:US, Canadian, AUS)	
17	* 4-943-472-11	PANEL, BACK (JX311:E)	

Ref. No.	Part No.	Description	Remark
18	* 3-703-244-00	BUSHING (2104), CORD (JX411:AUS)	
18	* 3-703-571-11	BUSHING (S) (4516), CORD (JX411:US, Canadian, E)	
19	1-569-007-11	ADAPTER, CONVERSION 2P (JX411:E)	
20	*1-638-226-11	CONNECTOR BOARD (JX311)	
21	3-704-242-01	SCREW, TERMINAL, + BVTP CLAW (JX311)	
22	4-923-836-21	CUSHION (JX411: Canadian)	
CN501	⚠1-540-057-11	OUTLET, AC (POLAR) (AC OUTLET) (JX411:US, Canadian)	
CN501	⚠1-540-038-11	OUTLET, AC (NONPOLAR) (1P) (JX411:E)	
CN604	1-565-949-11	SOCKET, CONNECTOR 9P (JX311:US, Canadian, E, AUS)	
CP1	⚠1-551-188-XX	CORD, POWER (JX411:E)	
CP1	⚠1-558-945-11	CORD, POWER (JX411:US, Canadian)	
CP1	⚠1-559-912-11	CORD, POWER (JX411:AUS)	
FL701	1-519-512-11	INDICATOR TUBE, FLUORESCENT	
PJ1	* 1-580-691-11	JACK, PIN 2P (JX411)	
PT501	⚠1-450-386-11	TRANSFORMER, POWER (JX411:AUS, E)	
PT501	⚠1-450-387-11	TRANSFORMER, POWER (JX411:US, Canadian)	
S1	⚠1-572-267-21	SWITCH, PUSH (AC POWER) (1 KEY) (JX411)	
TM1	* 1-537-264-11	TERMINAL BOARD	
VS1	⚠1-570-046-21	SWITCH, VOLTAGE CHANGE (JX411:E)	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- –XX, –X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- Abbreviation
  AUS: Australian

Ref. No.	Part No.	Description			Remark
	A-4341-787-A	CONTROL BOARD, COMPLETE (JX311:US, Canadian/JX411:US)			
	A-4341-788-A	CONTROL BOARD, COMPLETE (JX411:Canadian)			
	A-4341-789-A	CONTROL BOARD, COMPLETE (JX311:E, AUS/JX411:E)			
	* A-4341-790-A	CONTROL BOARD, COMPLETE (JX411:AUS)			
		**********			
	1-638-227-11	SWITCH BOARD			
	* 1-638-226-11	CONNECTOR BOARD (JX311)			
	* 4-921-941-01	CUSHION (FL)			
	* 4-942-301-01	HOLDER, FL TUBE			
		< CAPACITOR >			
C601	1-124-477-11	ELECT	47uF	20% 25V	(JX311)
C603	1-101-004-00	CERAMIC	0.01uF	50V	(JX311)
C604	1-101-004-00	CERAMIC	0.01uF	50V	(JX311)
C605	1-101-004-00	CERAMIC	0.01uF	50V	(JX311)
C606	1-101-004-00	CERAMIC	0.01uF	50V	(JX311)
C607	1-136-173-00	FILM	0.47uF	5% 50V	(JX311)
C608	1-124-911-11	ELECT	220uF	20% 50V	(JX311)
C609	1-101-004-00	CERAMIC	0.01uF	50V	(JX311)
C701	1-126-157-11	ELECT	10uF	20% 16V	
C702	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C703	1-125-486-11	DUBLE LAYERS	0.22F	5.5V	
C704	1-126-163-11	ELECT	4.7uF	20% 50V	
C705	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C714	1-124-465-00	ELECT	0.47uF	20% 50V	
C715	1-161-379-00	CERAMIC	0.01uF	20% 25V	
		< VIBRATOR >			
CF701	1-577-101-11	VIBRATOR, CERAMIC			

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN601	1-580-956-11	SOCKET, CONNECTOR 7P (JX311)	
CN602	1-580-956-11	SOCKET, CONNECTOR 7P (JX311)	
CN604	1-565-949-11	SOCKET, CONNECTOR 9P (SYSTEM CONTROL) (JX311)	
CN701	1-580-956-11	SOCKET, CONNECTOR 7P	
CN702	1-580-957-11	SOCKET, CONNECTOR 8P	
CN703	* 1-568-952-11	PIN, CONNECTOR 3P	
		< DIODE >	
D601	8-719-987-63	DIODE 1N4148M (JX311)	
D602	8-719-933-35	DIODE HZS6A3L (JX311)	
D603	8-719-912-81	DIODE EQA02-06C	
D701	8-719-987-63	DIODE 1N4148M	
D702	8-719-987-63	DIODE 1N4148M	
D703	8-719-987-63	DIODE 1N4148M	
D707	8-719-987-63	DIODE 1N4148M (JX311:E, AUS/JX411:E, AUS)	
D708	8-719-987-63	DIODE 1N4148M	
D709	8-719-987-63	DIODE 1N4148M	
D710	8-719-987-63	DIODE 1N4148M	
D711	8-719-987-63	DIODE 1N4148M	
D712	8-719-987-63	DIODE 1N4148M	
D713	8-719-987-63	DIODE 1N4148M	
D714	8-719-987-63	DIODE 1N4148M	
D715	8-719-987-63	DIODE 1N4148M	
D716	8-719-987-63	DIODE 1N4148M	
D717	8-719-987-63	DIODE 1N4148M	
D718	8-719-987-63	DIODE 1N4148M	
		< FLUORESCENT INDICATOR >	
FL701	1-519-512-11	INDICATOR TUBE, FLUORESCENT	

CONTROL | SWITCH | CONNECTOR | POWER

Ref.No.	Part No.	Description				Remark
		< IC >				
IC701	8-759-234-35	IC TMP47C670N-1283				
		< COIL >				
L601	1-410-521-11	INDUCTOR	100uH			(JX311)
L701	1-410-521-11	INDUCTOR	100uH			
		< TRANSISTOR >				
Q601	8-729-900-89	TRANSISTOR DTC144ES				(JX311)
Q602	⚠ 8-729-900-89	TRANSISTOR DTC144ES				(JX311)
		< RESISTOR >				
R602	1-247-741-11	CARBON	150	5%	1/2W F	(JX311)
R603	1-249-429-11	CARBON	10K	5%	1/4W	(JX311)
R604	1-249-429-11	CARBON	10K	5%	1/4W	(JX311)
R605	1-249-435-11	CARBON	33K	5%	1/4W	(JX311)
R606	1-249-438-11	CARBON	56K	5%	1/4W	(JX311)
R607	1-249-441-11	CARBON	100K	5%	1/4W	(JX311)
R690	1-212-942-00	FUSIBLE	2.2	5%	1/2W F	(JX311)
R701	1-249-405-11	CARBON	100	5%	1/4W	
R702	1-249-441-11	CARBON	100K	5%	1/4W	
R703	1-249-441-11	CARBON	100K	5%	1/4W	
R704	1-249-441-11	CARBON	100K	5%	1/4W	
R705	1-249-423-11	CARBON	3.3K	5%	1/4W	
R706	1-249-423-11	CARBON	3.3K	5%	1/4W	
R707	1-249-423-11	CARBON	3.3K	5%	1/4W	
R708	1-249-423-11	CARBON	3.3K	5%	1/4W	
R709	1-249-417-11	CARBON	1K	5%	1/4W	
R710	1-249-411-11	CARBON	330	5%	1/4W	
R711	1-249-411-11	CARBON	330	5%	1/4W	
R712	1-249-429-11	CARBON	10K	5%	1/4W	
R713	1-249-429-11	CARBON	10K	5%	1/4W	
R714	1-249-429-11	CARBON	10K	5%	1/4W	
R715	1-249-429-11	CARBON	10K	5%	1/4W	
R716	1-249-429-11	CARBON	10K	5%	1/4W	
R717	1-249-429-11	CARBON	10K	5%	1/4W	
R718	1-249-429-11	CARBON	10K	5%	1/4W	
R719	1-249-429-11	CARBON	10K	5%	1/4W	
R720	1-249-441-11	CARBON	100K	5%	1/4W	
R721	1-249-441-11	CARBON	100K	5%	1/4W	
R722	1-249-423-11	CARBON	3.3K	5%	1/4W	
R723	1-249-423-11	CARBON	3.3K	5%	1/4W	
R724	1-249-423-11	CARBON	3.3K	5%	1/4W	
		< SWITCH >				
S701	1-554-303-21	SWITCH, TACTILE	(1)			
S702	1-554-303-21	SWITCH, TACTILE	(2)			
S703	1-554-303-21	SWITCH, TACTILE	(3)			
S704	1-554-303-21	SWITCH, TACTILE	(4)			
S705	1-554-303-21	SWITCH, TACTILE	(5)			
S706	1-554-303-21	SWITCH, TACTILE	(6)			
S707	1-554-303-21	SWITCH, TACTILE	(7)			
S708	1-554-303-21	SWITCH, TACTILE	(8)			
S709	1-554-303-21	SWITCH, TACTILE	(9)			
S710	1-554-303-21	SWITCH, TACTILE	(0)			
S711	1-554-303-21	SWITCH, TACTILE	(AUTO TUNING)			
S712	1-554-303-21	SWITCH, TACTILE	(MEMORY SCAN)			
S713	1-554-303-21	SWITCH, TACTILE	(MEMORY)			
S714	1-554-303-21	SWITCH, TACTILE	(SHIFT)			
S715	1-554-303-21	SWITCH, TACTILE	(BAND)			
S716	1-554-303-21	SWITCH, TACTILE	(TUNING +)			
S717	1-554-303-21	SWITCH, TACTILE	(TUNING -)			

****

*	1-638-229-11	POWER BOARD				(JX411)
		**********				
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S				
		< CAPACITOR >				
C501	1-161-744-00	CERAMIC	0.01uF			400V
C502	1-101-004-00	CERAMIC	0.01uF			50V
C503	1-101-004-00	CERAMIC	0.01uF			50V
C504	1-124-910-11	ELECT	47uF	20%		50V
C506	1-101-005-00	CERAMIC	22000PF			50V
C507	1-124-907-11	ELECT	10uF	20%		50V
C508	1-124-907-11	ELECT	10uF	20%		50V
C509	1-101-005-00	CERAMIC	22000PF			50V
C510	1-124-925-11	ELECT	2.2uF	20%		100V
C511	1-101-005-00	CERAMIC	22000PF			50V
C512	1-124-910-11	ELECT	47uF	20%		50V
C513	1-124-911-11	ELECT	220uF	20%		50V
C514	1-126-105-11	ELECT	1000uF	20%		35V
C515	1-101-005-00	CERAMIC	22000PF			50V
C516	1-101-005-00	CERAMIC	22000PF			50V
		< CONNECTOR >				
CN1	1-580-956-11	SOCKET, CONNECTOR 7P				(JX411)
CN2	1-564-980-11	PIN, CONNECTOR 4P				(CONTROL S IN)
CN3	1-564-980-11	PIN, CONNECTOR 4P				(CONTROL S OUT)
CN4	1-580-956-11	SOCKET, CONNECTOR 7P				
CN501	⚠1-540-057-11	OUTLET, AC (POLAR)				(AC OUTLET) (JX411:US, Canadian)
CN501	⚠1-540-038-11	OUTLET, AC (NONPOLAR)				(1P) (JX411:E)

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D501	8-719-200-77	DIODE 10E2N	
D502	8-719-200-77	DIODE 10E2N	
D503	8-719-987-63	DIODE 1N4148M	
D504	8-719-987-63	DIODE 1N4148M	
D505	8-719-912-81	DIODE EQA02-06C	
D506	8-719-110-73	DIODE RD30ESB3	
D507	8-719-987-63	DIODE 1N4148M	
		< IC >	
IC501	8-759-820-09	IC LA5667	
		< JACK PIN >	
PJ1	* 1-580-691-11	JACK, PIN 2P	
		< TRANSFORMER >	
PT501	⚠ 1-450-386-11	TRANSFORMER, POWER (JX411:E, AUS)	
PT501	⚠ 1-450-387-11	TRANSFORMER, POWER (JX411:US, Canadian)	
		< RESISTOR >	
R501	1-202-725-00	SOLID 3.3M 10% 1/2W (JX411:US, Canadian)	
R502	1-249-437-11	CARBON 47K 5% 1/4W	
R503	⚠ 1-247-752-11	CARBON 1K 5% 1/2W F	
R504	1-249-393-11	CARBON 10 5% 1/4W	
R505	1-249-441-11	CARBON 100K 5% 1/4W	
		< BASE POST >	
TB501	* 1-535-141-00	BASE POST 22MM (10MM PITCH) 4P (JX411:US, Canadian)	
		**********	
	* A-4341-783-A	TUNER BOARD, COMPLETE (JX311:US, Canadian)	
	* A-4341-793-A	TUNER BOARD, COMPLETE (JX311:E, AUS)	
	* A-4341-794-A	TUNER BOARD, COMPLETE (JX411:US, Canadian)	
	* A-4341-795-A	TUNER BOARD, COMPLETE (JX411:E, AUS)	
		**********	
		< CAPACITOR >	
C1	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C2	1-124-477-11	ELECT 47uF 20% 25V	
C3	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C4	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C5	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C10	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C21	1-161-021-11	CERAMIC 0.047uF 10% 25V	
C22	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C23	1-124-477-11	ELECT 47uF 20% 25V	
C24	1-123-382-00	ELECT 3.3uF 20% 100V	
C25	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C26	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C27	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C28	1-124-903-11	ELECT 1uF 20% 50V	
C30	1-124-903-11	ELECT 1uF 20% 50V	
C31	1-124-902-00	ELECT 0.47uF 20% 50V	
C32	1-124-463-00	ELECT 0.1uF 20% 50V	
C33	1-130-482-00	MYLAR 0.0082uF 5% 50V (JX311:US, Canadian/JX411:US, Canadian)	
C33	1-130-481-00	MYLAR 0.0068uF 5% 50V (JX311:E, AUS/JX411:E, AUS)	
C34	1-123-382-00	ELECT 3.3uF 20% 100V	
C35	1-130-482-00	MYLAR 0.0082uF 5% 50V (JX311:US, Canadian/JX411:US, Canadian)	
C35	1-130-481-00	MYLAR 0.0068uF 5% 50V (JX311:E, AUS/JX411:E, AUS)	
C36	1-123-382-00	ELECT 3.3uF 20% 100V	
C37	1-124-907-11	ELECT 10uF 20% 50V	
C38	1-124-907-11	ELECT 10uF 20% 50V (JX411)	
C39	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C40	1-124-463-00	ELECT 0.1uF 20% 50V	
C41	1-124-927-11	ELECT 4.7uF 20% 100V	
C42	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C43	1-126-176-11	ELECT 220uF 20% 10V	
C44	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C45	1-123-382-00	ELECT 3.3uF 20% 100V	
C46	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C48	1-123-382-00	ELECT 3.3uF 20% 100V	
C49	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C51	1-124-477-11	ELECT 47uF 20% 25V	
C52	1-124-252-00	ELECT 0.33uF 20% 50V (JX411)	
C61	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C62	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C63	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C64	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C81	1-102-961-00	CERAMIC 27PF 5% 50V	
C82	1-102-961-00	CERAMIC 27PF 5% 50V	
C83	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C84	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C85	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C86	1-124-477-11	ELECT 47uF 20% 25V	
C87	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C101	1-124-925-11	ELECT 2.2uF 20% 100V	
C102	1-124-463-00	ELECT 0.1uF 20% 50V	
C103	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C104	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C105	1-124-477-11	ELECT 47uF 20% 25V	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
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Ne les remplacer que par une pièce portant le numéro spécifié.

TUNER

Ref. No.	Part No.	Description	Remark
		< FILTER >	
CF1	1-567-389-11	FILTER, CERAMIC	
CF2	1-567-389-11	FILTER, CERAMIC	
CF21	1-577-075-11	OSCILLATOR, CERAMIC	
CFT21	1-404-853-11	TRANSFORMER, IF (CERAMIC FILTER)	
		< CONNECTOR >	
CNJ1	1-580-957-11	SOCKET, CONNECTOR 8P	
CNJ2	1-580-956-11	SOCKET, CONNECTOR 7P	
		< DIODE >	
D21	8-719-987-63	DIODE 1N4148M (JX411)	
D22	8-719-987-63	DIODE 1N4148M (JX411)	
D23	8-719-987-63	DIODE 1N4148M (JX411)	
D24	8-719-987-63	DIODE 1N4148M (JX411)	
		< FRONT END >	
FE1	1-465-006-11	FRONT END (FM) (2 GANG)	
FE61	1-236-461-11	ENCAPSULATED COMPONENT	
		< IC >	
IC21	8-759-821-45	IC LA1851N	
IC81	8-759-820-91	IC LC7218	
		< COIL >	
L21	1-410-494-11	INDUCTOR 1MMH	
		< FILTER >	
LPF21	1-235-164-00	FILTER, LOW PASS	
LPF22	1-235-164-00	FILTER, LOW PASS	
		< TRANSISTOR >	
Q1	8-729-230-XX	TRANSISTOR 2SC2669-OY	
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q26	8-729-900-80	TRANSISTOR DTC114ES	
Q27	8-729-620-05	TRANSISTOR 2SC2603-EF (JX411)	
Q28	8-729-620-05	TRANSISTOR 2SC2603-EF (JX411)	
Q81	8-729-900-61	TRANSISTOR DTA114ES	
Q82	8-729-900-80	TRANSISTOR DTC114ES	
Q83	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q84	8-729-230-93	TRANSISTOR 2SC3113-AB	
		< RESISTOR >	
R1	⚠ 1-249-409-11	CARBON 220 5% 1/4W	
R4	1-216-013-00	METAL CHIP 33 5% 1/10W	
R5	1-216-013-00	METAL CHIP 33 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R6	1-216-037-00	METAL CHIP 330 5% 1/10W	
R7	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R21	⚠ 1-249-404-00	CARBON 82 5% 1/4W	
R22	1-247-535-11	CARBON 8.2K 5% 1/4W	(JX311:US, Canadian/JX411:US, Canadian)
R22	1-249-462-11	CARBON 22K 5% 1/4W	(JX311:E, AUS/JX411:E, AUS)
R23	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R24	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R25	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R27	1-247-543-11	CARBON 18K 5% 1/4W	
R29	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R31	1-216-041-00	METAL CHIP 470 5% 1/10W	
R32	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R33	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R34	1-247-553-11	CARBON 47K 5% 1/4W	(JX311)
R34	1-247-721-11	CARBON 4.7K 5% 1/4W	(JX411)
R35	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R37	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R39	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R40	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R41	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R42	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R44	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R45	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R46	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R47	⚠ 1-249-409-11	CARBON 220 5% 1/4W	
R48	1-216-097-00	METAL CHIP 100K 5% 1/10W	(JX411)
R49	1-216-097-00	METAL CHIP 100K 5% 1/10W	(JX411)
R61	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R62	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R63	1-216-009-00	METAL CHIP 22 5% 1/10W	
R81	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R82	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R83	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R84	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R85	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R86	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R88	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R89	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R91	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R92	⚠ 1-249-401-11	CARBON 47 5% 1/4W	

Note:
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Replace only with part number specified.

Note:
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Ne les remplacer que par une pièce portant le numéro spécifié.

TUNER

Ref. No.	Part No.	Description			Remark
R101	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R102	1-216-043-00	METAL CHIP	560	5%	1/10W
R103	1-216-049-00	METAL CHIP	1K	5%	1/10W
R104	1-216-035-00	METAL CHIP	270	5%	1/10W
R105	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R106	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R107	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R108	1-216-025-00	METAL CHIP	100	5%	1/10W
R109	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R110	⚠ 1-249-405-11	CARBON	100	5%	1/4W
		< VARIABLE RESISTOR >			
RV21	1-238-015-11	RES. ADJ. CARBON 4.7K			
RV22	1-238-017-11	RES. ADJ. CARBON 22K			
RV24	1-238-017-11	RES. ADJ. CARBON 22K			
		< TRANSFORMER >			
T21	1-404-807-11	TRANSFORMER. DISCRIMINATOR			
		< TERMINAL >			
TM1	* 1-537-264-11	TERMINAL BOARD (SPEAKER)			
		< TEST PIN >			
TP1	* 1-560-060-00	PIN. CONNECTOR 2P			
		< VIBRATOR >			
XT81	1-577-126-11	VIBRATOR. CRYSTAL			

****

MISCELLANEOUS
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19	1-569-007-11	ADAPTER. CONVERSION 2P (JX411:E)
CN604	1-565-949-11	SOCKET. CONNECTOR 9P (JX311:US. Canadian. E. AUS)
CP1	⚠ 1-551-188-XX	CORD. POWER (JX411:E)
CP1	⚠ 1-558-945-11	CORD. POWER (JX411:US. Canadian)
CP1	⚠ 1-559-912-11	CORD. POWER (JX411:AUS)
S1	⚠ 1-572-267-21	SWITCH. PUSH (AC POWER) (1 KEY) (JX411)
VS1	⚠ 1-570-046-21	SWITCH. VOLTAGE CHANGE (JX411:E)

Ref. No.	Part No.	Description	Remark
		ACCESSORY & PACKING MATERIAL	
		**********	
	1-501-374-11	ANTENNA. LOOP (JX411:US. E. AUS)	
	1-558-232-11	CORD (WITH CONNECTOR) (SIRCS) 4P (JX411:US. E. AUS)	
	1-559-533-11	CORD. CONNECTION (JX411:US. E. AUS)	
	3-753-100-11	MANUAL. INSTRUCTION (JX411:E)	
	3-753-100-21	MANUAL. INSTRUCTION (JX411:US. AUS)	
*	4-941-692-01	CUSHION (JX311:US. E. AUS/JX411)	
*	4-943-621-01	INDIVIDUAL CARTON (JX411:US. AUS)	
*	4-943-621-11	INDIVIDUAL CARTON (JX411:E)	

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HARDWARE LIST

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# 1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
# 2	7-682-548-09	SCREW +BVTT 3X8 (S)
# 3	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S
# 4	7-621-849-00	SCREW. TAPPING (JX411)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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Audio Group

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